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ABSTRACT

This fourth grade environmental education guide is one of a series of guides, K-12, which were developed by teachers to help introduce environmental education into the total curriculum. The guides are supplementary in design; it is the teacher's decision when the concepts, objectives, activities, and resources may best be integrated into the existing classroom curriculum. This guide contains a series of episodes (minilessons), each having a number of suggested in- and out-of-class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Although the same concepts are used throughout the K-12 program, emphasis is placed on different aspects of each concept at different grade levels. The fourth grade guide focuses on aspects such as soil and organisms, water purification, poetry, and design. Each of the 12 concepts is covered in one of the episodes contained in the guide. Further, each episode offers subject area integration, subject area activities, interdisciplinary activities, cognitive and affective behavioral objectives, and suggested references and resource materials useful to teachers and students. An appendix containing related games is included. (Author/TK)

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ENVIRONMENTAL EDUCATION GUIDE

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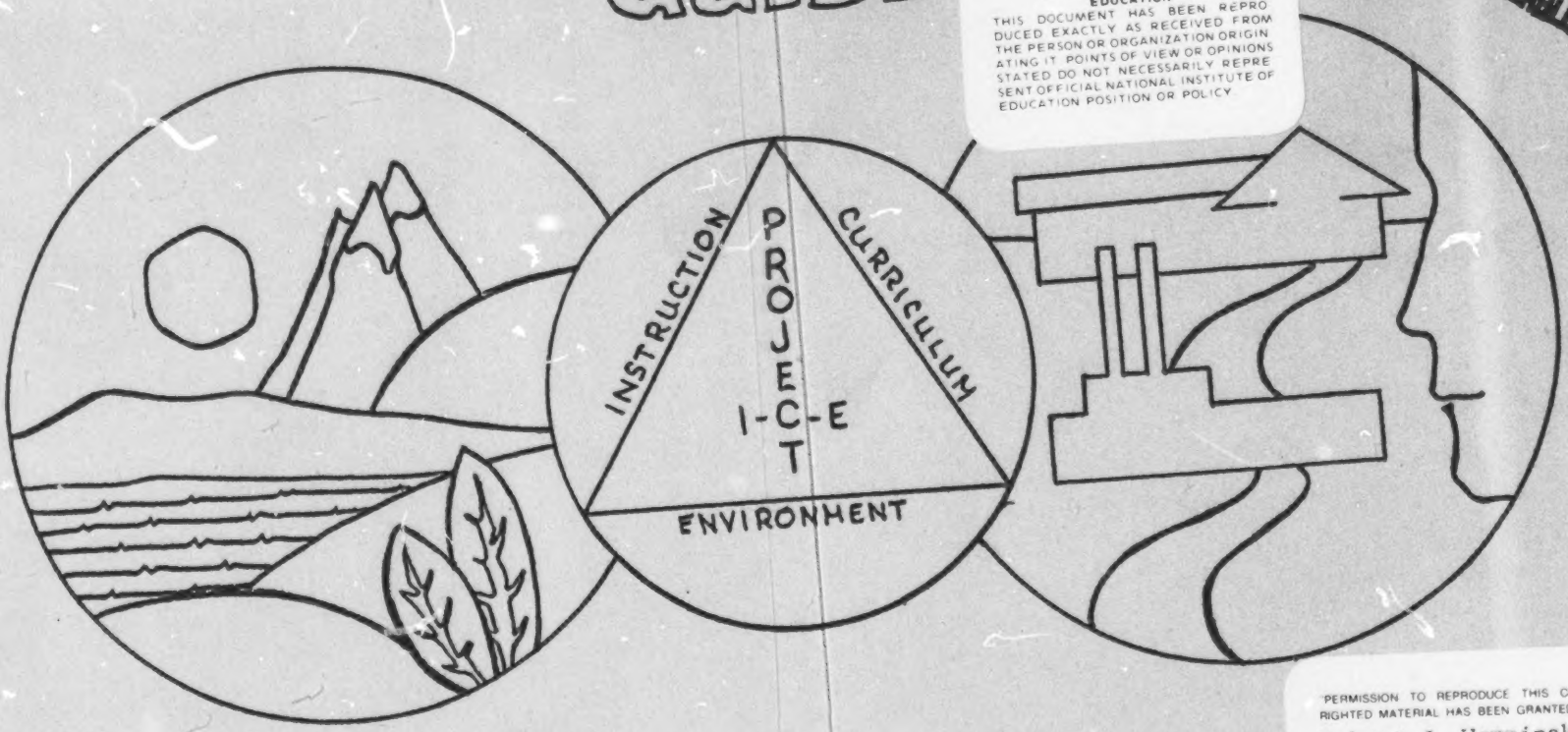

GRADE FOUR

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FORWARD TO PROJECT I-C-E ENVIRONMENTAL EDUCATION GUIDES

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In 1969, the First Environmental Quality Education Act was proposed in the United States Congress. At the time of the introduction of that legislation, I stated:

"There is a dire need to improve the understanding by Americans of the ominous deterioration of the Nation's environment and the increasing threat of irreversible ecological catastrophe. We must all become stewards for the preservation of life on our resource-deficient planet."

In the three years since the Environmental Education Act was passed by the Congress, much has happened in the United States to reinforce the great need for effective environmental education for the Nation's young people. The intensive concern over adequate energy resources, the continuing degradation of our air and water, and the discussion over the economic costs of the war against pollution have all brought the question of the environmental quality of this nation to a concern not merely of aesthetics but of the survival of the human race.

The intense interest by the public in the quality of our lives as affected by the environment clearly indicates that we cannot just use incentives and prescriptions to industry and other sources of pollution. That is necessary, but not sufficient." The race between education and catastrophe can be won by education if we marshall our resources in a systematic manner and squarely confront the long-term approach to saving our environment through the process of education.

As the incessant conqueror of nature, we must reexamine our place and role. Our world is no longer an endless frontier. We constantly are feeling the backlash from many of our ill-conceived efforts to achieve progress.

Rachel Carson's theme of "reverence for life" is becoming less mystical and of more substance as our eyes are opened to much of the havoc we have wrought under the guise of progress. A strong commitment to an all-embracing program of environmental education will help us to find that new working definition of progress that is a pre-requisite to the continued presence of life on this planet.

- Senator Gaylord Nelson

PREFACE

The knowledge and appreciation of one's environment should be furthered at grade level four. This continuation should emphasize the role of the individual and his ability to evaluate critically the environmental problems he faces today. Stress should be given to the inter-relationships of all elements of the environment and how he depends on these relationships.

As a result of this unit the child will accomplish two things. First, he will develop methods to self evaluate the needs of society. Second, he will realize the immediate need for the preservation of his world.

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DIRECTIONS FOR USING THIS GUIDE

This guide contains a series of episodes (mini-lesson plans), each containing a number of suggested in and out of class learning activities. The episodes are built around 12 major environmental concepts that form a framework for each grade or subject area, as well as for the entire K-12 program. Further, each episode offers subject area integration, multi-disciplinary activities, where applicable, both cognitive and affective behavioral objectives and suggested reference and resource materials useful to the teacher and students.

1. This I-C-E guide is supplementary in design--it is not a complete course of study, nor is its arrangement sequential. You can teach environmentally within the context of your course of study or units by integrating the many ideas and activities suggested.

2. The suggested learning activities are departures from regular text or curriculum programs, while providing for skill development.

3. You decide when any concepts, objectives, activities and resources can conveniently be included in your unit.

4. All episodes can be adapted, modified, or expanded thereby providing great flexibility for any teaching situation.

5. While each grade level or subject area has its own topic or unit emphasis, inter-grade coordination or subject area articulation to avoid duplication and overlap is highly recommended for any school or district seeking effective implementation.

This total K-12 environmental education series is the product of 235 classroom teachers from Northeastern Wisconsin. They created, used, revised and edited these guides over a period of four years. To this first step in the 1,000 mile journey of human survival, we invite you to take the second step--by using this guide and by adding your own inspirations along the way.

PROJECT I-C-E TWELVE MAJOR ENVIRONMENTAL CONCEPTS

1. The sun is the basic source of energy on earth. Transformation of sun energy to other energy forms (often begun by plant photosynthesis) provides food, fuel and power for life systems and machines.

2. All living organisms interact among themselves and their environment, forming an intricate unit called an ecosystem.

3. Environmental factors are limiting on the numbers of organisms living within their influence. Thus, each ecosystem has a carrying capacity.

4. An adequate supply of clean water is essential to life.

5. An adequate supply of clean air is essential for life.

6. The distribution of natural resources and the interaction of physical environmental factors greatly affect the quality of life.

7. Factors such as facilitating transportation, economic conditions, population growth and increased leisure time influence changes in land use and population densities.

8. Cultural, economic, social, and political factors determine man's values and attitudes toward his environment.

9. Man has the ability to manage, manipulate and change his environment.

10. Short-term economic gains may produce long-term environmental losses.

11. Individual acts, duplicated or compounded, produce significant environmental alterations over time.

12. Each person must exercise stewardship of the earth for the benefit of mankind.

A "Concept Rationale" booklet and a slide/tape program "Man Needs His Environment" are available from the I-C-E RMC to more fully explain these concepts.

TABLE OF CONTENTS

Concept	Topic	Page No.
1	Writing - Letter Writing	7
	Life in the Forest	11
	Uses of Trees	13
	Tumbling	15
	Graphics	17
	Painting	19
2	Wis. History - The Wis. Indians	21
	Animals	23
	Living Communities	27
	Team Sports	31
3	Identification of Soils & Organisms	33
	Design	35
	Birth and Life Stages	37
4	Recreating and Commercial Fishing	39
	Water Purification	43
	Construction	47
5	Air	49
	Mobiles	55
6	Wisconsin Resources	57
	Glacial Effects on Soil	61
	Paper Sculpture (BAS-relief)	63
	Fractions	65
7	Pantomine	67
	Wisconsin	69
	Housing	73
	Drawing & Painting - Design	83
	3-D Paper Design Collage	85
8	Poetry	87
	Comparison by Subtraction	89
	Political Campaign Turned Environments	91

TABLE OF CONTENTS

Concept	Topic	Page No.
9	Natural and Man-Made Changes in the Environment	93
	Collage	97
10	Water Pollution	101
	Supply and Demand of Trees	103
11	Wisconsin Resources	107
	Conservation	109
	Group Ceramics	111
12	Conserving Resources	113
	Posters	117
	Volleyball and Lead-Up Games	119

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 1 Energy

SUBJECT Language Arts

ORIENTATION Dependence on Sun

TOPIC/UNIT Writing - Letter Writing

BEHAVIORAL OBJECTIVES

Cognitive:
Demonstrate proper letter writing form by writing a letter of inquiry, or expression of opinion that will contain the following:

a. Heading
b. Salutation
c. Body
d. Closing

Affective:
Defend the sun's work in spite of man's abuses of the atmosphere.

(Examples: air pollution, thermal inversion, etc.,)

Skills Used:
1. Letter writing
2. Review of paragraphs punctuation, spelling and penmanship.
3. Dramatizing (expression is important)

(continued)

STUDENT--CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss form for letter writing (friendly letter A.V. sample showing letter form could be used.)
B. Review, in group discussion our dependence on the sun.
C. View film or appropriate filmstrip-charts.
D. Write a letter to Mr. Sun, choice:
   1. Expressing appreciation of what he does.
   2. Expressing dissatisfaction over disrupted plans.
   3. Relating any experience in which you and the sun were involved.
   4. Requesting a specific kind of weather.
   5. Relating to the sun something you know about him.
   6. Mr. Sun letters could be "mailed." An exchange with each other would bring them an answer.
      The letter of response could be drafted and then written on Mr. Sun's stationery.

(continued)

Outside or Community:

SUGGESTED RESOURCES

Publications:

Books:
English text for 4th grade, for letter form.
Science texts.
Encyclopedias.

Man (In a Poetic Mode)
Mc Dongal, Littell & Co.
Poems:
On a Sunny Evening - Anonymous children
Song for the Sun That Disappeared Behind the Rainclouds, Primitive African

Audio-Visual: (continued)

Our Mr. Sun, Roa's Films, Milwaukee or BAVI
Any appropriate filmstrips
Any appropriate charts

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (continued)

The stationery designs must show some of the ideas we have about the sun. (See page 2 for reference.)

E. Children will bring poems to class concerning the sun.
1. As individual poems are read, each student will jot down ways in which life depends on the sun.
2. Discussion will follow of the ways in which life depends on the sun after each poem or after all poems are read.
3. Some of the children might like to memorize a poem.
4. The children can use the poem on back for choral reading using light, medium, and dark voices.
5. The children can write short poems telling about the energy of the sun; e.g.:

I wait for the sun each morn,
When each new day is born,
To see each lovely thing.
What new life it will bring.

"Song for the Sun That Disappeared Behind the Rainclouds"

The fire darkens, the wood turns black.
The flame extinguishes, misfortune upon us.
God sets out in search of the sun.
The rainbow sparkles in his hand,
The bow of the divine hunter.
He has heard the lamentation of his children.
He walks along the milky way, he collects the stars.

With quick arms he piles them into a basket,
piles them up with quick arms
like a woman who collects lizards
and piles them into her pot, piles them up
until the pot overflows with lizards
until the basket overflows with light.
Primitive African (Hottentot)

(continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (continued) Translated by Ulli Beier 6. Offer the children the opportunity to teach a short poem to the rest of the class. Publications: (continued) Trans. Ullibeier.
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 1 Energy **SUBJECT** Science

ORIENTATION Energy Sources **TOPIC/UNIT** Life in the Forest

BEHAVIORAL OBJECTIVES

Cognitive:

Children will view filmstrips and investigate various fungi to discover that the sun is the basic source of energy.

Construct an explanation that for the poor condition of a plant, using the absence of sun as the basic reason.

Affective:

Appreciate the dependence of all living things on the sun, by listing it as the primary source of energy for all living things when asked.

Skills Used:

1. Investigation
2. Collections of fungi and bacteria
3. Observing growth
4. Discussion
5. Record-keeping

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Review needs of a healthy tree. Discuss what would happen if the sun ceased to shine.

B. If class does not visit woods area, show slides, filmstrip, or film on falling logs or decaying wood.

C. Make collage of pictures of plants & animals that live off an original tree. Make a mural if pictures for a collage are not available.

D. Investigate:
   1. Life bark-insects, slugs
   2. Discover how decaying wood becomes part of soil
   3. Grow different fungi:
      a. Bread mold
         Homemade bread works best because preservatives have not been added. Place bread that has been sprinkled with water in a sealed, transparent container. Label, with childs name

(continued)

Outside or Community:

A. Visit a wooded area. Look at a fallen log. Investigate. (Note how the other animals in this environment depend directly or indirectly on plants.)

SUGGESTED RESOURCES

Publications:

Ranger Rick Magazine, Wildlife Federation

The True Book of Bacteria by Anne Frahm Children Press, 1963

Once There Was A Tree, Phyllis Bush, World Pub.

Concepts in Science, Brandwein, Cooper, Blackwood, Home.

Growth of a Tree, American Forest Institute

Field Guide "Natures Recycling System II" ICE-RMC

Audio-Visual:

Films:

How Plants Help Us, 12 min. McGraw-Hill, BAVI

Life on a Dead Tree, 11 min. Films Assoc. of Calif. BAVI

Animals & Plants of Forests, McGraw-Hill

Filmstrips;

Green Plants Are Important to Us, Jam Handy Organization, 2821 E. Grand Ave.,

Community:

Soil Conservationist

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (continued)

and date. Keep a record of the experiment. Record weekly progress.

b. fruit mold - Seal fruit or a section of fruit in transparent container. Record changes on a data sheet.

Mold Description Chart	
Type of Culture	
Date	Description

c. Bracket fungi on trees - find samples. Bracket fungi, which is usually white or brown fungi that protrudes from tree stumps, can be found in a nearby wooded area.

4. Discuss bacteria, another plant living on a tree; tiny one-celled plants that depend on other plants. Fungi and bacteria are the main plants that cause a tree to decay and return to soil. Without decaying, life could not go on. If there were not substances that returned to soil, green plants would have no food.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 1 Energy

SUBJECT Social Studies and Art

ORIENTATION Dependence on Sun's Energy

TOPIC/UNIT Uses of Trees

BEHAVIORAL OBJECTIVES

Cognitive:

Make a booklet of the uses of trees. Arrange the steps of a fruit in proper sequence, i.e. orange, from the time it is picked until it's bought by the consumer, in a chart. Construct a design showing the indirect use of the Sun's energy.

Affective:

Verbally support conservation practices that either directly or indirectly influence the protection of the forest resources and indirect uses of the Sun's energy.

Skills Used:

1. Make booklet
2. Discussion
3. Take slides or photographs
4. Collage techniques
5. Pen and ink drawing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   - A. Bring fruits that are canned or raw. Trace each product to where it grew. Sequence chart of what happened since it was picked.
   - B. Make booklet showing the above results.

ART PROJECT ON BACK SHEET

Outside or Community:

1. Take slides or photographs of same area during the four seasons. Notice a particular tree-its changes.
2. Find magazine picture of products made from trees and make a booket displaying these.
3. Arbor Day Last Friday of April, plant a tree. Study steps of planting. How will they care for it?
4. Research What trees grow best in our area; on mountains in desert; in jungle?
5. Visit paper mill or saw mill.
6. Visit lumber yard.
7. Survey any store what equipment is made of wood; what wood items they sell.
8. Visit a reforestation camp.
9. Students should research to find out what vehicles indirectly require the Sun's energy.

SUGGESTED RESOURCES

Publications:

"Scrap Paper Caper," S. Kropa, Instructor, 81:73, May '72
"Shattered Shapes," A. Guga, Arts & Activities, 71:22-4, Apr. '72
"Torn Tissue Becomes Tradition," School Arts, 70:10, Dec. '70
"Drawing With Mixed Media," M.B. Bowman, School Arts, 71:14-15, N '71
Kelly, Collage and Color," D. Waldman, bibliography, Art News, 70:44-7, D'71 (continued)

Audio-Visual:

Sunlight and Shadow in Painting, BAVI
Films:
"Forestry" (black & white) 16 min. (United World) BAVI
"The Forest Grows" (color) 11 min. (EBF) BAVI
Filmstrips:
108-120 "Using Our Trees Wisely"
V-16 "Lumbering in Wisconsin"
ICE-RMC
Kit 48 "Field Trips out of the Ordinary"
"A Field Trip to the Lumber mill"

Community: ICE-RMC

Forest Ranger
Conservationist
"Trees for Tomorrow"
Store
Reforestration Camp

CONTINUED OR ADDED LEARNING ACTIVITIES

Publications: (continued)

"Mixed Media Collage," J. Comins, School Arts, 71:10-11, N '71
"S. Gabliks Collages," L. Alloway, Nation, 214 604-5, May 8, '72
Tropical Rain Forests by Goetz, William Morrow Publishers
Paul Bunyan and His Big Blue Ox by Wadsworth.

II. ART PROJECT

A. This could be used as a cover for a booklet or as an individual project.
   1. Tear small pieces of warm (red, yellow, orange) colored tissue. Overlap to cover entire background. A gel medium may be used to adhere tissue.
   2. Superimpose one or more motor vehicles over background using pen and ink, marker, etc., that requires the Sun's energy to work.
   3. Superimpose fruit shapes and/or cross section of fruits, balancing composition over tissue background. Use pen and ink or marker.
   4. Superimpose motor vehicles or fruit shapes using cool (blue, green, violet) colors of tissue over background.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

CONCEPT NO. 1 Energy

ORIENTATION Energy Sources

Integrated with:

SUBJECT Physical Education

TOPIC/UNIT Tumbling

BEHAVIORAL OBJECTIVES

Cognitive:

The indirect dependence on the sun by orally listing a food chain and physically creating one.

Orally list an example of a food chain, beginning with the sun. Demonstrate the relationships existing in a food chain by arranging persons playing roles of sun, plants and (cont.)

Affective:

Indicate his awareness of dependency of all living things on the Sun's energy (Indirect & direct, cause of effect relationships) by challenging a food chain that does not include the sun.

Skills Used:

1. Strength, agility coordination
2. Cooperation
3. Kinesthetic sense
4. Balance

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

Note: Following activities are illustrated in Curriculum Manual for Elementary Physical Education, Mel J. Nicks, I-C-E RMC 613 Ni, copyright by Diocesan Dept. of Education, Green Bay, Wisconsin, 1965

A. Mat Stunts (individual)
   1. Stump walk
   2. Log Roll
   3. coffee grinder
B. Mat Stunts (Dual)
   1. Wheelbarrow
   2. Double walk
   3. Churn the butter
C. Tumbling
D. Student Centered - teacher directed.
   1. Discussion to make the children aware of the food chain they are part of and dependent on. For Example:
      Simple Food Chain
      Sun--Rice--Chinese
      Sun--Corn--Man

(continued)

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

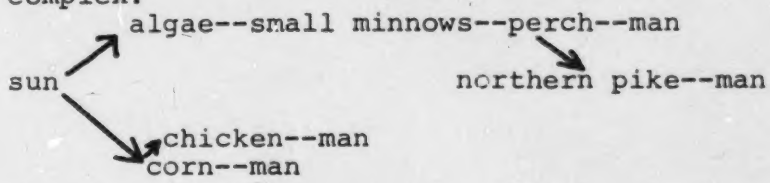
Curriculum Manual for Elementary Physical Education, Mel J. Nicks, Diocesan Dept. of Education
Green Bay, WI 1965 I-C-E RMC

Audio–Visual:

Community:

Classroom: (continued)

2. Complex:



a. Have students choose a link of a food chain performing Skin the Snake, Sun Beginning, etc.

E. Pyramid building
1. Have children build pyramids, with 3 people representing the simplest chain.
2. With 4 people representing the next chain.
3. Continue to the most complex chain of 6 people.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 1 Energy

SUBJECT Art

ORIENTATION Sun Energy

TOPIC/UNIT Graphics

BEHAVIORAL OBJECTIVES

Cognitive:
Illustrating Sun designs, using cardboard and colored drawing materials.

Affective:
Indicate aesthetic awareness when using Sunbased designs by making statements each as "Its Pretty."

Skills Used:

1. Drawing
2. Cutting
3. Pasting
4. Relief designs

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Relief Printing
   1. Make raised cardboard Sun design.
   2. Print it using bright colors.
   3. Study Sun symbols in different cultures. (Sun symbols will also be used on p. 7)

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

"Aspects of Collage," W. Farnsworth, Arts and Activities, p. 36-39, Feb. '72
"Monoprinting," K.K. Agee, Grade Teacher, P. 52, Sept. '69
"Making a Cardboard Print," E. Palmatier, Today's Education, p. 35, Sept. '71
"Monoprints in color," P, Carrules, Arts & Activities, p. 41, Dec. '70
"Print With Egg Cartons," S. Rolle, Arts & Activities, P. 35,

Audio-Visual: (continued)

The Sun Symbol in Art, Bailey Films, 6509 DeLongpre Ave., Hollywood, California 90028

Community:

Publications: (continued)

Sept. '71
"Shattered Shapes," A. Guga, Arts & Activities, 71:22-4, Ap. '72 "Oops....its (p," (Collage) L. De Wyngaert, School Arts, 71:8, Ap '72
"Kelly Collage and Color," D. Waldman, bibliography, Art News, 70:44-7, D '71
"Mixed Media Collage" J. Comins, School Arts, 71:10-11, N '71

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 1 Energy **SUBJECT** Art

ORIENTATION Sun Energy **TOPIC/UNIT** Painting

BEHAVIORAL OBJECTIVES

Cognitive:
Apply principles of warm colors to formation of an abstract design.

Affective:
Demonstrate sensitivity to warm colors and their implications, by saying "These colors make me feel warm, cold; etc.," when shown appropriate colors.

Skills Used:

1. Water color techniques
2. Tempra painting
3. Sketcho's
4. Marker outline
5. Warm & Cool colors

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Warm and cool colors
   1. "What colors make you feel warm?" These are sun colors.
   2. Make an abstract design using all sun colors.
      (a) Use all straight lines.
      (b) Use all curved lines
      (c) Use combination of straight & curved.

Outside or Community:

A. Take students outside to see sun colors in nature. Have them name the things they see and the warm color of these things.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

-Sponge Painting, R. Meaney, Instructor, p. 44, April '70
Colors, Shapes, Patterns and Textures in Nature
Kit #16 ICE-RMC

Audio-Visual:

Discovering Dark & Light, BAVI

Community:

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 2 Ecosystem

SUBJECT Social Studies

ORIENTATION Ecosystem Stability

TOPIC/UNIT Wis. History - The Wis. Indians

BEHAVIORAL OBJECTIVES

Cognitive:

Identify and locate places in Wisconsin that have Indians names.

Build or discuss a scale model of an Indian Village (or draw). Display pictures & objects of Indians such as arrowheads, drums, beaded belts & other things used by indians in daily life. (continue)

Affective:

Select 5 from a given list of 8 practices , which may or may not have caused the breakdown of an Indian ecosystem. For Example: Forest cut down; unneeded killing of wildlife; climate; firearms; better ways of cultivation; disease; etc.

Argue the position that the Indian's way of life (cont.)

Skills Used:

1. Map reading
2. Model making - Wood and wire or clay
3. Drawing conclusions
4. Research
5. Comparison & contrast

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Class activity
   1. Briefly review the history of Indians in Wis.
   2. Make a map of areas where Indians lived in Wis.
   3. Have students show & explain uses of various Indian artifacts found locally.
   4. Lead students to conclude why & how the balanced life of the Indians changed and ended. Ex. (careless killing of wildlife by pioneer)
   5. Have them work out a parallel ecosystem that's threatened & if possible plan a trip examples of what they are looking for.
   6. Students make drawing that explains what life was like in Wisconsin before the white man came in. Show how this was a more or less a balanced ecosystem at the time. Indians grew rice & killed animals

(cont.)

Outside or Community:

A. Resource Person - A person of Indian descent or one who has studied the culture could tell what is different about the lives and the Indian people. Compare early days with the way Indians live today. Tell about the reservations, and life styles of Indians of today.

B. Visit an Indian site or a reservation. Learn what you can through observation.

SUGGESTED RESOURCES

Publications:

Books:

- Exploring Wisconsin, Romano Georiady, pp. 20-40
- Exploring Wisconsin, Follette, pp. 8-11
- Wisconsin Story, p. 8-18
- Mound Builders, Scheele
- Chief Black Hawk, Beals
- Complete Book of Indian Craft & Lore, Hunt

Audio-Visual:

Films:

- Indian Dances, BAVI 2629
- Indian Canoemen, BAVI 1065
- Indian Hunters, BAVI
- How Indians Build Canoes, BAVI 2762

Filmstrip:

- Early Wisconsin, Part C ROA Record:
- Rhythm of Red Man Movie·
- End of Trail: The American Plains Indian

(continued)

Community:

Neville Museum
Bird Sanctuary or some similar ecosystem
Conservationist speaker

CONTINUED OR ADDED LEARNING ACTIVITIES

Cognitive: (continued)

Diagram an Indian effigy mound. Have them explain what it is. Make a small birch bark canoe.

In-Class: (continued)

(food, skins, weapons, jewelry) only as they needed it. Thus allowing the supply to last. Sport of White man, war, etc. helped to unbalance this system. With the knowledge of balanced life of Indian communities, have students decide what actions combined to destroy this ecosystem. e.g. What happened to the buffalo; what were the results of fences of White man; the wars & food supplies; etc. Then ask and/or present a local ecosystem that is being threatened and lead students to evaluate the causes threatening & possible solutions. e.g. Bird Sanctuary; The Bay; Fox.

AUDIO-VISUAL: (continued)

TV Channel 38, Woodland People - Wis. A Proud Heritage, NEWIST Kit 48,"Field Trips Out of the Ordinary," Eye Gate "A Field Trip to a Coal Mine" ICE-RMC

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 2 Ecosystem **SUBJECT** Science, Mathematics, Art, & Language Arts

ORIENTATION Interdependence **TOPIC/UNIT** Animals

BEHAVIORAL OBJECTIVES

Cognitive:

Explain examples of life styles of animals and the interaction of factors necessary to support life.

Construct an imaginative story illustrating the interaction of factors necessary to support life.

Affective:

Develop an awareness to the needs of various animals by offering to provide proper care for animals in the classroom.

Skills Used:

1. Using descriptive language
2. Sentence structure
3. Paragraphing
4. Imagination
5. Using card catalog

(continued)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art & Science
   A. Creation of a zoo or nation center using miscellaneous materials for construction.
      1. Students work in groups, each group being responsible for constructing an environment which will comfortably sustain the life of the animal they choose to build an environment for.
      2. All cages must have feeding and watering areas, be safe in that the animals can't escape, yet provide that animal with a comfortable living space-flight areas for birds, burrows for borrowing types, sufficient walking areas for large animals, ponds for waterfowl, etc. (It is surprising how interested the students become (cont.)

Outside or Community:

I. Trip to nature center.

II. Research library books and magazines.

III. Construct Venn Diagrams to illustrate actual ecosystem interrelations.

IV. Invite a park or recreational facility planner who can share with the students ideas and factors which go into the planning of a park or recreational area.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Ecology: Web of Life Series:
Benziger, 866 Third Avenue
New York, New York, ICE-RMC 130
Mc10
Ecology American Book at ICE
Subarshy, Zachariah
Living Things in Field and
Classroom, Minnesota
Mathematics and Science
Teaching Project
Ecolab Johnson and Mann
Benefic Press Available
at ICE Kit 21 RMC (continued)

Audio-Visual:

Ecological Systems:
Imperial Film Co.
4 filmstrips, Animal World
Series
McGraw-Hill, avail. at ICE
office
World of Animals available at
ICE-RMC, Filmstrip sets 5,8, 13
Interrelationships of Plants &
Animals
SVE ROA Films, Milwaukee
Urban Ecology: Six Microsystems
(Filmstrip) ICE-RMC
Ecology & Man Series #2 (cont.)

Community:

Skills Used: (continued)

6. Listing of members of a set
7. Construction of Venn Diagrams to find intersection
8. Discerning an intersection of a set
9. Listing an intersection
10. Learning cooperation in group projects
11. Properly shaping and forming animals of various sizes & kinds.

In-Class: (continued)

in providing the best possible life for their caged animals.

II. Math

A. Have either actual animals or A.V. materials presenting animals habitats available. Students are to take two animals and list the factors necessary for the life of each.
   1. construct Venn Diagrams and place the information for each animal into the circles.
   2. List
      a. Union of the sets
      b. Intersection of the sets
      c. Subsets

B. Write stories - children take part of any plant or animal found in study and write about - My Day in a clump of Grass.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Publications: (continued) Concepts in Science 4 p. 135-73 and p. 175-209. Under a Tree by Elizabeth Madox Roberts - Viking Press Our Living World of Nature by McGraw-Hill Book Co. The Life of the Cave The Life of the Ocean The Life of the Marsh The Life of Rivers and Streams The Life of the Pond The Life of the Seashore The Life of the Desert The Life of the Mountains The Life of the Prairies and Plains Margaret Waring Buck, Abingdon In Woods & Fields In Ponds & Streams "Balance on a Shoestring", O.C. Lacke, Arts & Activities, p. 14-16, June '70 "Skylight Mobiles", W.D. Ehlers, Arts & Activities, P. 20-1, Jan. '71 "Papercrafts & Mobiles", R. Perlmutter, Teaching Exceptional Children p. 134-41, Spring '72 "Why Don't You Make a Mobile?", M. Shaw, Arts & Activities, p. 32-3, April '72.
Audio-Visual:	Audio-Visual: (continued) McGraw-Hill avail. at ICE-RMC Nature's Half Acre Film N-210 Pond Life BAVI $2.25 String & Stakes or Shovels Several reading glasses Plastic bags or wide-mouth glass bars for carrying earth samples Movie projector Film: Life in a Cubic Foot of Soil BAVI 5677 - 11 min.
Community:	

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Environmental: Integrated with:

CONCEPT NO. 2 - Ecosystem SUBJECT Science - Phy. Ed. - Art

ORIENTATION Dependence Between Organisms TOPIC/UNIT Living Communities

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

BEHAVIORAL OBJECTIVES

Cognitive:
Construct a terrarium in which the principles of interdependency are properly applied. Draw illustrations indicating the proper application of the principle of interdependency of objects in nature.

Affective:
Demonstrate his awareness of the interaction and interdependence in the environment around him, by selecting examples from his immediate environment.

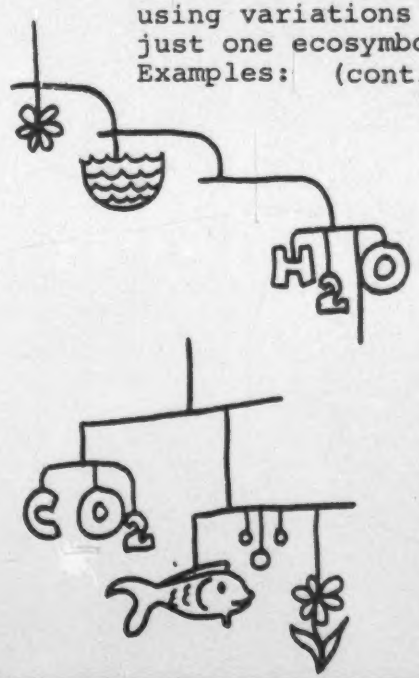
Skills Used:
1. Ability to cut out, paint or otherwise decorate the parts, coordinate these in creating a pleasing and meaningful design.
2. Ability to suspend and

(cont.)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art
   A. Mobile Construction
      1. Use symbols of the ecosystem in the numerous parts being suspended...the student may elect to incorporate more than one ecosymbol in his design or limit his design to using variations of just one ecosymbol. Examples: (cont.)



Outside or Community:

I. Travel to see a building or room having mobiles suspended in it.
II. View a museum display (Milwaukee Museum) to familiarize themselves with the ecosystem chains before constructing their mobiles.
III. Use the finished mobiles to decorate a community building (hospital, bank, store, library, gallery, etc.).
IV. Ask children to bring in samples of plants that are unhealthy looking or discolored. Estimate the causes--plant nutrient deficiencies, insect damage, plant disease, air pollution.
V. Collect many different types of soil (clay, top soil, potting soil, sandy soil) and observe their characteristics and ability to absorb water and to grow plants.
VI. Take a class trip to a floral shop or greenhouse.

SUGGESTED RESOURCES

Publications:

"Balance on a Shoestring", O.C. Locke, Arts & Activities, p. 14-16, June '70

"Skylight Mobiles", W.D. Ehlers, Arts & Activities, p. 20-1, Jan. '71

"Papercrafts & Mobiles", R. Perlmutter, Teaching Exceptional Children, p. 134-41, Spring '72

"Why Don't You Make a Mobile", M. Shaw, Arts & Activities, p. 32-3, April '72 (cont.)

Audio-Visual:

Movies:

Nature's Half Acre, BAVI film, No. 3479, or ICE-RMC #210

What Plants Need for Growth, BAVI film, No. 5117

Conservation for Beginners, Green Bay Instructional Media Center, No. 4180 (Coronet film)

We Get Food from Plants & Animals
McGraw-Hill Publ. co., Text Film Dept., 330 W. 42nd st. New York, New York 10036

Filmstrips: (continued

Community:

Talk by local florist, landscape man or crop farmer

CONTINUED OR ADDED LEARNING ACTIVITIES

Skills Used: (continued)

balance multiple objects.
3. Attaching supports and threads to the individual pieces.
4. Identify plants and animals
5. Observation in plant growth
6. Skills related to specific game

In-Class: (continued)

II. Physical Education
   A. Organize a game
      1. Have the students play a game. (kick ball, volleyball).
      2. Score should be kept.
   B. Discussion: Student-Centered
      Teacher-Directed
      1. Why did one team win and one team lose?
         Better team.
         Comment: Work together more
         Intro. - Ecosystem
      2. Assuming class understands the interaction of players in the game, name other types of ecosystems. How are the organisms dependent on each other? School, classroom, home, family, community are examples.
         NOTE: Make sure the students relate ecosystem to nature.

(continued)

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SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

Audio–Visual:

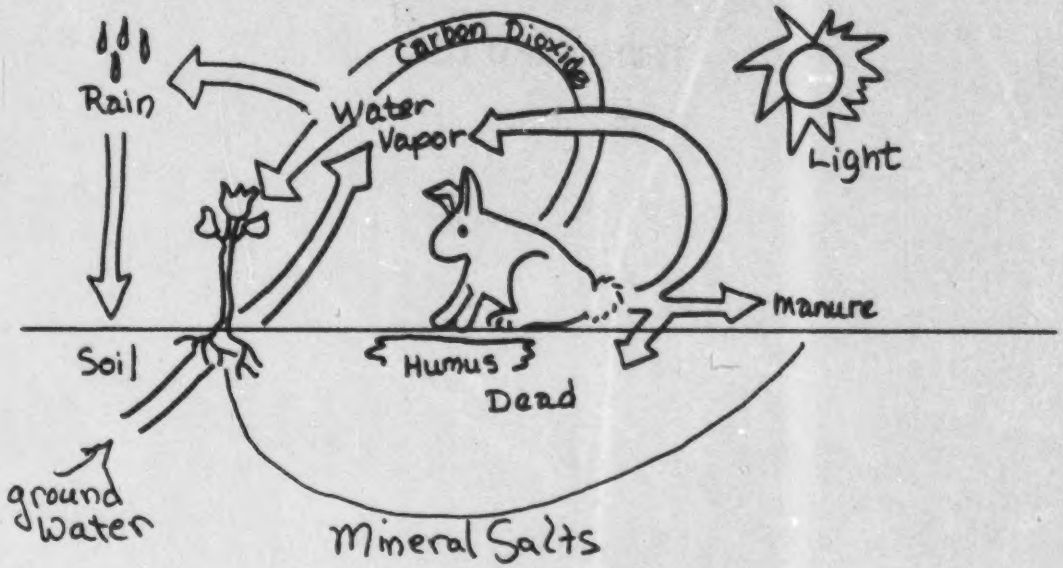
Community:

In-Class: (continued)

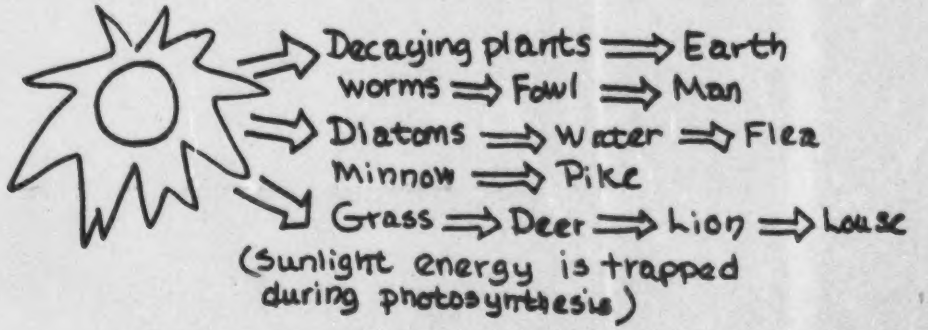
III. Science

A. construct a terrarium showing that plants can live on light, air, soil, and water as illustrated.

B. Discuss the following Food Cycle.



C. Discuss the following food chains.


Decaying plants ⇒ Earth
worms ⇒ Fowl ⇒ Man
Diatoms ⇒ Water ⇒ Flea
Minnow ⇒ Pike
Grass ⇒ Deer ⇒ Lion ⇒ Louse
(Sunlight energy is trapped during photosynthesis)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Publications: (continued) Books and slides on work of Alexander Calder A Crack in the Pavement by Ruth Howell Moving Hills of Sand by Julian May Busy Water by Irma Simonton Living Things by Jeanne Bendick Audio-Visual: (continued) Learning About Plants, Encyclopedia Britannica The World of Living Things, Society for Visual Education, Inc. 1345 Diversey Parkway, Chicago, Illinois 60614
Audio-Visual:	
Community:	

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E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 2 Ecosystems **SUBJECT** Physical Education

ORIENTATION Interaction **TOPIC/UNIT** Team Sports

BEHAVIORAL OBJECTIVES

Cognitive:
Verbally explain the cause-effect interdependence of an ecosystem using physical activities as analogies.

Affective:
Demonstrate awareness of the interaction and interdependence in the environment around them by selecting examples or selecting analogies from his own environment.

Skills Used:
1. The skill related to a specific game
2. Observation (knowledge)
3. Application
4. Analysis

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Have students play any game in which there are two teams.
   1. Score should be kept.

B. Discussion: Student-Centered; Teacher-Directed
   1. Why did one team win and one team lose? Better team. Comment: Work together more Intro.-Ecosystem.
   2. Assuming class understands the interaction of players in the game, name other types of ecosystems. How are the organisms dependent on each other?
      a. School, classroom, home, family, community are examples.

NOTE: MAKE SURE THE STUDENTS PLAY ANY GAME IN WHICH THERE ARE 2 TEAMS.

Outside or Community:

I. Physical Education
   A. Classroom correlation activities:
      1. Speaker: Discuss teamwork, possibly of a former athlete.
      2. Make a collage of an ecosystem. Each student choosing one of a variety of ecosystems.
      3. Go to the park and find an ecosystem and write a paragraph on dependents within it.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 3 Carrying Capacity **SUBJECT** Science - Social Studies

ORIENTATION Population Density **TOPIC/UNIT** Identification of Soils & Organisms

BEHAVIORAL OBJECTIVES

Cognitive:

Compare and contrast selected areas by counting the variety of organisms present. Determine in what type of soil and under what conditions of moisture, sunlight and fertility a given organism grows best. Predict the resulting growth amount of a plant if one of the four factors above is reduced.

Affective:

Defend the idea that all plants, animals and people can become too many for a given area which causes a lack of quality.

Skills Used:

1. Making observations
2. Taking notes
3. Reporting (objective description)
4. Cause-Effect
5. Relationships

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Study about soil, Lead students to realize that soil is alive. Divide class into small groups. Each group is given a portion of soil (plants included, such as grass) about 12" by 12" by 2. Take it apart carefully and collect & count all living creatures you can see. Record all findings on a chart.
   1. Examine soil with microscope to see how they are different. Try to separate soil visually into various materials (sand, clay, portions of decayed plant materials, etc) Students can also experiment in making their own soils and testing their growing abilities.

(continued

Outside or Community:

I. Compare and classify the kinds of organisms found within an open field and in a residential and/or industrial area. List limiting factors.

II. From many different places in the vicinity, obtain samples of county materials from:
   a. Quarry where layers are clearly visible.
   b. Plowed fields where they are brought to surface as a result of weathering.
   c. Stone fences where they have been exposed to the weather for a long period of time.
   d. Various beaches where they have been acted upon by sand and water action.
   e. Gravel deposits.
   f. Quarry where dolomite is being crushed.

Emphasize the great variety. Develop some understanding of how these materials were formed or changed (in part) and how we might use some of them.

(continued)

SUGGESTED RESOURCES

Publications:

Text-Agriculture: Grade 4
Man & the Land, Allyn & Bacon.
Community Planning Handbook
100 Gi at ICE-RMC
Living Things in Field and Classroom 110 Subarsky at ICE-RMC
Mini-Climates - Mine publications Inc. and Winston 120 Ms at ICE-RMC
100 Le Leopold, Aldo, A Sand County Almanac ICE-RMC

Audio-Visual:

Filmstrip:
Irrigation, Troll Associates from group of 4 filmstrips saving our environment.
Ecology and Man Series #3
McGraw-Hill at ICE-RMC St 9
No Room for Wilderness
BAVI $11.00
Man Uses and Changes the Land
BAVI $4.00
The Ecological Crisis
Evolution and Extinction
K 14 ICE-RMC, Cry of the Marsh
390 **Community**: ICE

Local farmers & Agriculture teacher from High School Agricultural or County Agent.

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (continued)

2. Grow plants in various soils. Set up simple controlled experiments with students to show that plants will grow different in different soils

II. Social Studies
A. Consult an industrial planner or construction worker to find the size of a given housing project or industrial plant.
   1. Then multiply the size by the number of organisms per square foot as found in Problem A.
   2. Record these results on the chart.
B. Discuss the effects of the plant and animal loss on the total environment.
C. Propose a plan to replace the lost plants and animals. Teacher asks, "What would happen if our principal said we needed to have 18 more students put into our rather small classroom?"
   Discussion: Take Notes
   1. Conditions for learning
   2. Conditons for activities
   3. Conditions for noise.
   Outside/Community

III. More suggested Activities are available in "Nature's Recycling System II," a field guide from ICE-RMC.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 3 Carrying Capacity

SUBJECT Art

ORIENTATION Over-population

TOPIC/UNIT Design

BEHAVIORAL OBJECTIVES

Cognitive:
Discriminate between overuse of an object symbol and a unique interpretation of an object.

Evaluate the use of a symbol to promote an awareness to a given problem. Include the criteria used in the evaluation.

Affective:
Deliberately examines a variety of designs to which he is exposed, for the purpose of evaluating their effectiveness in getting their message across to the public and reports his findings to the class.

Skills Used:
1. Visual awareness
2. Design appreication
3. Discussion
4. Collage
5. Sketching
6. Painting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss the over-use of smile buttons and peace symbols as overpopulation.
   1. Where have you seen the smile or peace symbol used? Key chains, patches, matchbooks, bumper stickers, T-shirts, etc.
   2. Do you get tired of seeing these symbols? Why?
   3. Do you think it is a design that is so artistically good that it is worth repeating it so many times? Why or why not?
   4. Create a new, original symbol.

Outside or Community:

A. Have the students make observations of other fads--in and around their school, home and community environment.

B. Have the students collect magazines, locating overuse of fads through the advertisements.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: "Design" Fine Arts Publications Project ICE-RMC FA 110 **Audio-Visual:** "Why Man Creates?" (film) Public Library Sg. 4 "Man and His Environment" The Coca-Cola Co. 1970 Rescue in Space (ICE-RMC) **Community:**	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 3 Carrying Capacity **SUBJECT** Science

ORIENTATION Survival **TOPIC/UNIT** Birth and Life Stages

BEHAVIORAL OBJECTIVES

Cognitive:
Identify and record environmental factors that the life stages of the salmon, guppy, and snail. Beneficial; harmful in each of the stages in the life cycle of the salmon, guppy and snail.

Predict the effect of a particular change in an environmental factor as being helpful or harmful to a stage (cont)

Affective:
Acquaint himself with life stages of selected living organisms. By locating information in reference books or articles about the organism.

Skills Used:

1. Observe life stages
2. Chart
3. Record
4. Examine snail or frog eggs

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Class work
   1. Study adult salmon & its spawning behavior through films, filmstrips or texts. Both the male & female swim toward river where it was born. (May be a thousand miles away-takes weeks or months). What are the dangers they encounter on their way back? (Larger fish, fishermen, loss of weight from traveling and eating very little, waterfalls). How do salmon spawn? How do they prepare their spawning nest? What happens to the adults after they spawn? (die).
   2. Students are to keep records on a chart, of the environmental factors that will influence life stages.

Animals	Helpful Factors	Harmful Factors

(cont.)

Outside or Community:

I. Go to a fish hatchery.

II. Invite Marine biologist and game wardens to speak.

Sample Questions:

1. What is a fish ladder?
2. What kinds of distances are traveled?
3. How fast can a salmon travel?
4. What are the predators of the salmon?

SUGGESTED RESOURCES

Publications:

Books:
The Fisheries Story, George Shaftel & Helen Heffernon
from the Man Improves His World Series, Singer 1963
Red Tag Comes Back, Arnold Lobel, Harper & Row, 1961
#4 Concepts in Science - Text Harcourt, Brace & World

Audio-Visual:

Films:
The Life Story of A Snail, 11 Min. EBF
Salmon-Life Cycle of the Sockeye, 11 min., Hoefler, BAVI
Salmon Run, 8 min. filmloop, Walt Disney Productions

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

Cognitive: (continued)

in the life cycle of an animal and state why.

In-Class: (continued)

I, Science
A. Class Work
3. The young salmon hatches. What endangers do they encounter? (Other fish eat salmon eggs for food). Eggs that land between stones are the protected. When it reaches its size in fall, it stays inside egg all winter. When it hatches, it takes yolk sac along for food. Young salmon (Parr) 2 years old are called smolt. They head for the ocean.
4. Make sequential chart or mural.
5. Buy pregnant guppie & contrast life. What happens when not all babies are taken from area where mother is?
6. How are salmon & guppies used by people?
7. Observe snails in aquarium. Snails with oiled shell lay eggs on sides of aquarium. Snails with spiral pointed shell lay eggs on underside of leaves.
(a) Pull eggs off surface or scrape off with medicine dropper. Such eggs into dropper and place in aquarium water in dish.
(b) Examine daily with hand lens (Chart or Record)
1. When does it begin to move?
2. When does it leave egg?
3. When hatched, feed bits of lettuce
8. Frog eggs are laid similar to salmons'. If you can purchase or find these, observe stages.
9. Continue to discuss various other animals and the environmental factors that affect or influence their life stages. Ex.: Mountain lion, eagle are a couple that are nearing extinct because of the destruction of natural habitat.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 4 Water

SUBJECT Language Arts and Social Studies

ORIENTATION Needs for Water Pollution Control

TOPIC/UNIT Recreating and Commercial Fishing

BEHAVIORAL OBJECTIVES

Cognitive:

Define pollution:
Evaluate the statement "Pollution is a condition that exists whenever man tries to develop an area of land." In terms of the definition of pollution.

Analyze the statement "whenever you through away something, such as garbage, (cont.)

Affective:

Research pollutants in other countries and write a short summary of his findings.

Skills Used:

1. Discussion
2. Demonstration
3. Observations
4. Cause & Effect Relationships
5. Sequence
6. Paragraph Construction

(cont.)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Define Pollution as an excess of a material which cannot be absorbed by the environment.
Pollution occurs when the existing breakdown systems are overtaxed or destroyed, or when there is no existing system to handle the polluting substance.

B. Discuss commercial fishing areas--how fish are caught, canned, frozen, etc. Lead to discussion of what is happening to some fish. Why did our government say tuna was unsafe to eat? Why are Wisconsin Fishermen told to eat only one meal of fish a week caught in certain polluted waters. Discuss what causes pollution--detergents, factory wastes, raw sewage.

C. Collect pictures from magazines and papers showing birds and fish that have been hurt by pollution.

D. Research and write a summary on how food requirements are met in

(cont.)

Outside or Community:

I. If there is a good sewage purifying system in the area, arrange a visit. Then have the students outline/draw/ color the possible cycles that local water goes through.

II. Tour local water purification (Public Water Works) plant to determine how our water is made safe to drink.

III. Students should trace from sources to purification plant. Make drawing. Why was that source chosen?)

SUGGESTED RESOURCES

Publications:

Brochures - D.N.R.
"Our Growing Water Problems
R. G. Lynch - 1959
National Wildlife Federation
1412 - 16th Street N. W.
Washington, D.C.
Running Water
A. Stecher, Holt,
Rinehart, and Winston, 1971

Audio-Visual:

Enough Water for Everyone
(Filmstrip) Encyclopedia
Britannica Ed. Corp. #9090

Environmental Kit, Wis. Dept.
of Natural Resources, ICE-RMC
100- Wi Kits 2, 4

Community:

Water Dept. Representative

CONTINUED OR ADDED LEARNING ACTIVITIES

Cognitive: (continued)

you are polluting; therefore, it is impossible for man to live without polluting the land area in which he lives.

Skills Used: (continued)

7. Library Skills

In-Class: (continued)

countries such as Japan, China or where the population is large and agricultural land limited.

E. Have two large glass containers--fill one with fresh water and another with very polluted water. Then buy fish and put in and feed same food. Over a period, there should be a marked difference in vitality of fish. Have students explain why. Bring into class a game warden/conservationist, or commercial fisherman and have him explain just what it is that pollutes a particular body of water.

F. Perhaps an interesting way of opening discussion is to have two glasses (one clean water, one polluted). Ask for two volunteers. Have first drink clean water. Ask the second to drink dirty water--make sure you select a volunteer who won't drink it.

G. Have students draw up a list of major pollutants and explain how they get into the water--e.g. phosphates from soap, phosphates stimulate plant life, plant life takes oxygen out of water, therefore, lake ages more rapidly.

(continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (continued) H. Compare low-phosphate laundry aids with a detergent for amount of suds, amount of product needed and results on wash. I. Make a list of low phosphate brands that can be found in your grocery store on the soap and detergent shelves.
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 4 Water **SUBJECT** Science - Social Studies & Lang, Art,

ORIENTATION Adequate Pure Water Supply **TOPIC/UNIT** Water Purification

BEHAVIORAL OBJECTIVES

Cognitive:

Give several reasons, orally or written, that indicate that plants, animals, and people need water to live.

Predict what will happen to a given plant or animal population if the water supply is lowered.

Affective:

Advocate clean water for life of all living organisms by identifying impure water situations and making suggestions for water clean-up, using better life for living organisms as the reason for this.

Defend the use of chlorine, etc., to kill some organisms so that others, (cont.)

Skills Used:

1. Make model of water-purifying plant
2. Make booklet or scrapbook
3. Experiment
4. Recordkeeping
5. Research

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science & Social Studies
   A. Students may be divided into groups to investigate the different areas. (Students not expected to do all of these)
   Model: A water-purifying plant. Needed: funnel, sand, cotton, 1/2" of garden soil in a quart jar, another clean quart jar.
   1. Add about a quart of water to the jar with soil, and shank. Let water stand for a while. What happens to soil particles? What happens to the water as the particles settle? (Settling is one way of cleaning water).
   2. Place cotton in funnel and put a layer of sand about an inch deep over the cotton. Put funnel in clean jar. Gently pour (cont.)

Outside or Community:

I. Find out where a big city like New York gets its water. (Mountains, streams, rainfall, snow). Area in which streams and rivers collect rain and snow is called a watershed. Sometimes dams are built in a watershed, and the water is stored in a reservoir. Water doesn't move much, so soil and rock particles settle to bottom. Then water goes to purifying plant.
(tour one.) Here, the water is placed in a settling tank. Substances are added to make particles settle more quickly. Then filtered through sand. Water appears clean but there's bacteria. Water is sprayed into the air to kill bacteria. Then chlorine gas kills remaining bacteria. Then it is ready to drink.

II. Take pictures of a marsh. Find out what plants and wildlife live there.

III. Write to water plant and/or sewage disposal plant requesting permission to visit.

(continued)

SUGGESTED RESOURCES

Publications:

Books:
Not Only for Ducks. The Story of Rain by Glenn Blough, McGrawHill, New York, 1954.
Let's Look Under the City by Herman & Nina Schneider, Wm. R. Scott, Pub., New York, 1954.
Everyday Weather and How It Works, Herman Schneider, McGraw-Hill, New York, 1961.
Concepts in Science by Paul Brandwein, Harcourt, Brace & World, Inc., Chicago, 1966.

Audio-Visual: (cont.)

Films:
Water/Old Problems-New Approaches Time-Life, McGraw-Hill, 30 min.
Water Cycle - 10 min. EBF BAVI
Water Supply - 10 min. Academy, BAVI
Filmstrips:
407-4 Underwater Animals
Imperial Film Co.
645-3 Bodies of Water - I.F.C.
A.V. Slide tape
The Liquid of Life
Kit 47 ICE-RMC

Community:

Water purifying plant
Site of well being drilled
Creek
City Water Tower

CONTINUED OR ADDED LEARNING ACTIVITIES

Affective: (cont.)

including man, might live.

In-Class: (cont.)

some water from settling jar into funnel. What happens to water in funnel? (Clean water by passing through filter. Particles of soil are filtered out of water by passing through the sand.

B. Model: Watershed. Make mountain of ground with river imprints made in mountain (where river flows) to a central location (reservoir). Watch water in reservoir as soil and rock particles settle to bottom.
C. Find out how farmers or ranchers get water. (Well). Illustrate well drilling including soil layers for filtration. Well drillers sink a metal pipe into layer of rock. The water rises in the pipe. (Visit site of well drilling)
D. Booklet: Water is Essential. Include pictures and own written stories and poems.
E. Experiment: foods have water in them. (Use apple, egg, potato, meat, milk, orange). Needed: apple, knife, plastic bag, paper towel, tray.
   1. Weight apple on ounce scale. Record.
   2. Cut apple into small pieces so it will dry out more quickly. Put apples on tray and place in sunlight.
   3. Leave in sunlight for several days. Water will evaporate from the piece of apple.
   4. Weigh the dried-out pieces. Record. Then calculate weight of water lost by the apple. Can be repeated with other foods.
F. Record Keeping: Animals Need Water. Besides keeping track of how much water the child drinks have him record how much different animals drink in a specific length of time. Pen the animal up in a cage or fence. Weigh amount of water before placing before animal.

(cont.)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (continued) G. Research project: Report on animal or plant that lives in the water. Tell how these animals use the water. H. Water a plant. Tie a plastic/bag over it. What happens to the water? Outside Activities: (continued) IV. Write reports of field trips for newspaper, child's notebook, bulletin board, etc. V. Trip to nearby creek to see plant life and take sample of water. Note water lilies. Study water under microscope. Notice how heavy soil particles settle to the bottom. Have children bring samples of water from creeks near home. Compare. Use microscope.
Audio-Visual:	Publications: (continued) Running Water, Mine Pub., Inc. Moving the Earth in Running Water Stecher of Holt, Rinehart and Winston 1971
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 4 Water

SUBJECT Art

ORIENTATION Water Supply

TOPIC/UNIT construction

BEHAVIORAL OBJECTIVES

Cognitive:
Produce a unique communication through the using characteristics of snow.

Describe the characteristics of snow.

Affective:
Accept the value of using natural materials, such as snow, in making things of former aesthetics value by actually using these materials to make objects.

Skills Used:

1. Construction
2. Problem solving

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Snow Sculptures
   1. Within a designated area have the students build a sculpture using only the snow around them.
   2. Discuss how the sculpture changes using snow under different conditions as: frozen (ice) slush (adding water).
   3. Snow may be tinted using diluted tempra and spray guns.

Outside or Community:

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

"Children's Sculpture"
J.W. Burner, School Arts.
71:28-9 0. '71
"making It in 3-D" E. Stein,
School Arts. 71: 10-13 0. '71

Audio–Visual:

Community:

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4.

Environmental:

Integrated with:

CONCEPT NO. 5 Air

SUBJECT Science

ORIENTATION Air Quality

TOPIC/UNIT Air

BEHAVIORAL OBJECTIVES

Cognitive:

Evaluate the extent of the local air pollution problem on the basis of experimentally collected data and research information about each of the contaminants according to:

a. Contaminants found
b. Extent of contaminant
c. Employment in industries

Affective:

Indicate awareness of the fact that an adequate supply of clean air is essential to life. By making statments such as, "They'd better clean up that air or the plants and animals will die" when he encounters an impure air situation.

Skills Used:

1. Experiments
2. Observation
3. Charts
4. Collecting
5. Research

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Many of these activities are optional or the children can work in pairs. Entire class does activity No. 3.

1. Experiment: Warm air rises. (Before doing experiment discuss the fact that smoke rises from fire as seen by factory smokestacks, campfires, house chimneys, exhaust from tractor muffler or boat, etc.)
   Needed: 2 balloons, 2 pans, a pop bottle, tape measure, hot and cold water.
   a. Put a few drops of water in the pop bottle.
   b. Put balloon over the mouth of the bottle.
   c. Put hot water in a pan. Place bottle in water. What happens to the balloon? (Inflates & rises-warm air rises).
   d. Then put bottle in

(cont.)

Outside or Community:

I. Visit a city incinerator. What can be burned in it? It is an air-pollution control. (Designed to consume waste materials & resulting gases completely). Compare burning at a dump & pollution it causes.

II. Experiment: Air Pollution. Punch hole in 3 x 5 card. Cover hole with scotch tape. Tape card to a tree, house, school, post, etc. with sticky side outward for eight hours. Use hand lens or microscope to study particles on the tape.

III. Slides of local industrial sites giving off pollutants may be shown.

IV. Local area skin-diver come in and display his equipment.

V. Make 2 bulletin boards.
   1. Causes of Air Pollution
   2. Results of Air Pollution

VI. Car mechanic could relate importance of keeping car well-tuned to emit less pollutants.

VII. Guest speaker to talk on water phosphate problem.

VIII. Invite a weather man to discus storms and other weather conditions.

SUGGESTED RESOURCES

Publications:

Books:
Everyday Weather & How It Works, by Herman Schneider, McGrawHill, New York, 1961.
Clean the Air by Lewis, McGraw-Hill, New York, 1965.
Let's Go To Stop Air Pollution, Michael Chester, Putnam, 1970
Newspapers & Current Events Mag.
Mini-Climates, Mine Pub., Inc.

Audio-Visual:

Films:
What Makes Weather, Color, 14 min. (Cenco)
What Makes Clouds, Color, 19 min. (EBF) BAVI
Air Around Us, Color, 12 min., (John Colburn) BAVI
A Day at the Dump, Stuart Finley, Inc., 15 min., free From U.S. Dept. of H.E.W. M-1600-X
Filmstrips:
What Is Air Pollution? Multi-media Prod. Inc. (cont.)

Community:

City Incinerator
Airplane Pilot
Airport
Skin Diver

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

second pan of cold water. What happens to the balloon? (deflates)
e. Place bottle in direct sunlight. Predict what will happen.

2. Which is warmer on a hot day - a sandy beach or the water? (sand) Therefore, the air over the beach is warmer than the air over the water. The warmer air rises above the sand because cooler air from over the water flows in and pushes it up. Remember there's water vapor in the air from over the water. As the warm air rises it becomes colder, condenses and turns to water in a cloud. When tiny droplets combine, they fall as rain drops or fog.
3. Study cloud formations. Take photographs or slides. Find pictures in magazines of different forms of clouds. Charts: Cirrus, Status, Cumulus, Nimbus. Write characteristics of each form and type of weather one can predict from these.
4. Two big oceans. Ocean of water and ocean of air (larger- hundreds of miles deep and covers all the earth - we walk in it all the time). make list of things you can do in the ocean of air. (It's endless).
5. Find out how astronauts and skin divers get their necessary air. Have library display of these areas. Student research.
6. Four layers of air are: Troposphere, stratosphere, ionosphere, exosphere. Where is the most air? (1) Where do clouds form? (2) Where does dust pollution stay? (3) Where do jet airliners fly? (4) Where do radio waves bounce off back to earth? (5) Which shields us from the sun's rays? (6) Which stops meteors that shoot into the atmosphere? (7) Where is there the least air resistance? (8) Which is the beginning of space?

(Continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (continued)
	7. Air filter activity A. Make a device to collect air pollution samples. Get a vacuum cleaner and some filter paper or white cloth, a little bigger than the end of the hose. Fold it down and put a rubber band over the filter to hold it down. B. Collect pollutants in different places. (New filter for each) 1. Inside house 2. Outside house 3. In School 4. In industrial area 5. In one place at different times of day
Audio-Visual:	6. Exhaust from car. (stand at side of auto so you don't breathe C0) 7. Use different cars, trucks, motorcycles, etc. Compare all filters and amount on bulletin board reference. 8. Examine the air filters from a furnace. If possible, check the filter in a week and a month. Make generalizations on the dust in the air and the need for filters. 9. List the contaminants in the air: dust, smoke, lint, fog, pollen, mist, vapors, sprays, gases. Children draw's picture showing the source of the pollution. (May be cartoon). 10. Study about smog. Why is it hazardous to health? What cities are most affected? What is smog composed of? What causes smog?
Community:	11. List reasons why we must control smoke pollution. Brainstorm session causes sinus trouble, TB, pneumonia, cuts off sunlight, sulfuric acid poisons plant life, harms outside of buildings, causes metals to wear away, smoke stains, smudges on clothes, curtains and furniture). What is the worst mineral to pollute the air? (coal) What are the substitutes for coal?

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Audio-Visual: (continued) Air Pollution and You, U.S. Dept. of H.E.W. - Free loan Large cardboard pictures - curriculum Color Prints-Inst. Aids, Inc., 1964 Our Environment Atmosphere ICE-RMC Kt 32 Kit 45 slides The Effects of Air Pollution on Plant Life, 1972 Subset A "Air Pollution on Fruits and Vegetables" ICE- M.R.C. Kit 51 Fantasy to Learn From-Eye Gate 51C "Th.rman Alligator and the City of New York (Pollution) ICE-RMC
Audio-Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental

Integrated with:

CONCEPT NO. 5 Air

SUBJECT Art

ORIENTATION Clean Air

TOPIC/UNIT Mobiles

BEHAVIORAL OBJECTIVES	STUDENT–CENTERED LEARNING ACTIVITIES	
	In-Class:	Outside or Community:
Cognitive: Selects air polluting objects for the construction of a mobile.	A. Discuss and collect types of man-made objects which are blown around by the wind, littering the air. 1. Construct a mobile using these objects. 2. Study mobiles created by Alexander Calder. 3. Stress related shapes not just a haphazard assortment. Use only lightweight materials.	A. Collect man-made objects that pollute the air.
Affective: Indicates his aesthetic awareness of the result of air pollution by constructing two mobiles, one brightly colored illustrating no pollution and one dull colored illustrating air pollution.		
Skills Used: 1. Mobile construction 2. Discussion 3. Collecting		

SUGGESTED RESOURCES

Publications:

"Balance on a Shoestring", O.C. Locke, Arts & Activities, 67:14-16 June '70

"Skylight Mobiles", W.D. Ehlers, Arts & Activities, 68:33 S'70

"Strawmobiles" K.G. Kite, Arts & Activities, 68:20-1 Ja '71

"Paper Crafts and Mobiles", R. Perlmutter, Teaching Exceptional Children, p. 134-41 Spring '72

"Why Don't You Make a Mobile?",

Audio-Visual: (cont.)

"Make a Mobile", B.F.A. BAVI

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

Publications: (continued)

M. Shaw, Arts & Activities p. 32-3, April '72.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 6 Resources

SUBJECT Social Studies, Lang. Arts, Art and Math

ORIENTATION Relationship Between Natural Resources and Growth

TOPIC/UNIT Wisconsin Resources

BEHAVIORAL OBJECTIVES

Cognitive:

Locate and fill in areas of specific natural resources and dense populations. Explain the relationship that exists between a given resource and the population density in the area.

Predict what will happen to the population density of an area as a natural resource is depleted.

Affective:

Demonstrate awareness of the uneven distribution of natural resources and how this distribution parallels the population density by stating that the greater density of a given area must be due to greater resources.

Skills Used:

1. Mapmaking
2. Learn names of wildlife & animals in his environment.
3. Basic construction and principles of the mobile.
4. Library skills.

(cont.)

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
   A. give each child a blank outlined map of Wisconsin. Each child is to research and locate on the maps:
      1. Forests (hardwood & softwood trees)
      2. Water (lakes, rivers, etc.
      3. Minerals
      4. Wildlife, fish, deer, birds.
      5. Soils - sand, clay, gravel, humus, etc.
   B. Discuss outcomes of map. Ask where specific resources are located. Are all resources distributed evenly around Wisconsin?
   C. Research: List the 10 cities in Wisconsin with the largest population. Notice where they are located. (near lakes and rivers). Why are they located here? Next, research what industries are located in or around these cities. Make a

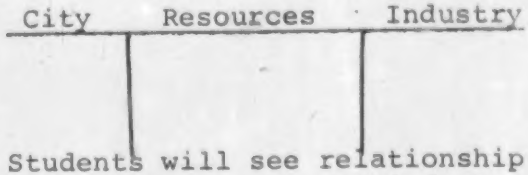
(cont.)

Outside or Community:

I. Invite local manufacturers to class or visit factories to observe natural resource use and how many people are employed. Notice carefully the location of industry.

II. Take a walk around your community observing how city is divided: commercial, residential, industrial, recreational etc. Why is city divided this way? What factors (natural resources) influence these divisions?

III. Invite City Planner to class. Make list of natural resources located in the area.



Students will see relationship between resources and industry

SUGGESTED RESOURCES

Publications:

Exploring Wisconsin by Romano & Georgiady, Follett Pub., P. 4-19
Geography of Wisconsin: A content Outline, Pub. by Finley.
Geography of Wisconsin Manual, Department of Resource Development, Madison, Wisconsin '63
Milwaukee Journal Pub. Wis. Almanac, free to schools, Jan. or Feb. - once a year.
Books:
About Saving Wildlife for Tomorrow by solveig, Mulmont Pub.,
(cont.)

Audio-Visual:

"Make a Mobile" B.F.A. BAVI
Films:
Wisconsin Agriculture, color 17 min. BAVI
Wiconsin Geography, An introduction, color, 18 min., BAVI
Wisconsin: Its People: Its Products: Its Place in the World, color, Carson, BAVI
Wisconsin Manufacturing and Mining, color, 20 min., BAVI
Wisconsin's Great Lakes Fishermen, color, 20 min., BAVI
(cont.)

Community:

Wis. Dept. of Natural Resources
Conservation Division, Box 450
Madison, Wisconsin 53701

CONTINUED OR ADDED LEARNING ACTIVITIES

Skills Used: (cont.)

5. Use of Venn Diagram
6. Subsets, Empty Sets
7. Tabulation of Union and Intersection of sets

In-Class: (cont.)

chart of findings. Example: City Resources Industries. How do the natural resources located in each area help the industries? How are the industries and natural resources related to each other?

D. Compare Wisconsin Natural resources with other states by way of report.
E. Show films From Trees to Lumber and From Tree to Paper.

II. Art
   A. compare the importance of nature's balance to the importance of a mobile's balance in its construction.
   B. Students can brainstorm and come up with 2 or 3 ecosystems and talk of their importance and also experiment with balancing mobiles.
   C. Discuss and illustrate the basic principles of the mobile.
      1. Using actual items from nature or just nature shapes made out of paper or lightweight metal, have the student construct a mobile.
      2. Stress that shapes should be related, not just a haphazard assortment.

III. Math
   A. give the students the list of mineral resources on reverse side.

(continued)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	**In-Class:** (continued) B. After the worksheet is finished, discuss the need for cooperation. C. Find the intersection and compare the area characteristics List of Mineral Resources Wisconsin — Sand, gravel, stone, cement, zinc Illinois — Coal, Petroleum, Stone, Sand, Gravel Indiana — Coal, Cement, Stone, Petroleum Iowa — Cement, Stone, Sand, Gravel, Gypsum Michigan — Iron, Ore, Cement, Copper, Sand, Gravel Kansas — Petroleum, Natural Gas, Helium, Natural Gas, Liquids Ohio — Coal, Stone, Lime, Cement South Dakota — Gold, Sand, Gravel Stone, Cement Use Venn Diagrams Tabulate the intersection and union. 1. Wisconsin and Illinois 2. Wisconsin and Michigan 3. Kansas and South Dakota Tabulate intersection and union 1. Wisconsin and South Dakota 2. Wisconsin and Ohio 3. Wisconsin and Iowa 4. Wisconsin and Indiana 5. Wisconsin and Kansas
Audio–Visual:	
Community:	**Publications:** (continued) Chicago. The First Book of Wildlife Sanctuaries by Harrison, Watts of New York Man Improves His World by Hefferman-Shaftel, L. W. Singer Co., Syracuse Lynch, John, "How To Make Mobiles", New York, Viking Press, Inc. Horn, George F., "Art for Today's School", Worchester, Mass., Davis Pub., Inc.

(cont.)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Publications: (cont.) "People, Places and Things Papered in Dimension", Arts and Activities, June '65 "Skylight Mobiles", Arts and Activities, Sept '70 "Balance on a Shoestring", O.C. Locke, Arts and Activities, p. 14-16, June '70 "Skylight Mobiles", W.D. Ehlers, Arts and Activities, p. 20-1 Jan. '71 "Strawmobiles", K.G. Kite, Arts and Activities, P. 30-2, Sept. '70 "Papercrafts and Mobiles", R. Perlmutter, Teaching Exceptional Children, p. 134-41, Spring, '72 "Why Don't You Make a Mobile", M. Shaw, Arts and Activities, p. 32-3, April, '72
Audio-Visual:	Natural Resources of Wisconsin 50¢ The State of Wisconsin Dept of Administration Document Sales Section State Office Bldg. 1 West Wilson Street Madison, Wisc. 53702 AUDIO-VISUAL: (CONT.) From Trees to Lumber, color, 14 min. American Forest Products Industry, BAVI From Trees to Paper, color, 12 min. American Forest Products Industry, BAVI
Community:	"Our Natural Resources" color 11 min. BAVI "Man Uses and Changes the Land" BAVI K 28 "Saving What's Left" (Utilizing our Resources-Adding to our Resources) ICE-RMC Man in His Environment, Rescue in Space ICE Kit #17

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 6 Resources

SUBJECT Social Studies

ORIENTATION Land Use

TOPIC/UNIT Glacial Effects on Soil

BEHAVIORAL OBJECTIVES

Cognitive:

Describe 3 different types of soil as left by the glacier and give a use for each in a written report.

a. Farming areas
b. Industrial land
c. Forest areas

He will, thereby, demonstrate an understanding that natural resources are not equally distributed over the earth and

(cont.)

Affective:

Demonstrates awareness of different soils produce different vegetation by making statements or reporting situtations to the class which indicate that specified plants grown in one type of soil or another.

Skills Used:

1. Map skills
2. Positive attitude toward living in a given area.
3. Observe and draw conclusions
4. Writing skills
5. Cause-Effect relationship

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Have students research the glacial area in Wisconsin, noting the different kinds of soil it brought.
B. Color map of glacier area.
C. Discuss what grows best in sand - clay- gravel.
D. Make a list of uses of each kind of soil.
E. Discuss vegetation in certain areas.
   1. Forested areas
   2. Lake areas
   3. Industrial areas
F. Write a report on the glacier movement and its effects on man.
G. Experiments to be done by the students.
   Experiment I:
   a. Collect soil samples - sand, clay, gravel.
   b. Collect small rocks.
   c. Mix above materials with snow and ice. put on an incline plane and let it melt showing glacial movement and deposits. Let drain into pan.

(cont.)

Outside or Community:

A. If such formations are in locality, have the class visit a "kettle moraine" or a ridge cut out by the glacier. To point out vividly how resources determin the jobs in an area, take class to some local industry to tour. Be sure to bring out natural resources involved. Show how The Great Lakes and rivers originated the site as a means of transportation and power.

SUGGESTED RESOURCES

Publications:

Social Studies and our Country, World Book
Exploring Wisconsin by Romano & Georgiday, Follett, Pub., p. 4-19
Geography of Wisconsin: A content outline, pub. by Finlay.
Geography of Wisconsin Manual, Department of Resource Development, Madison, Wisconsin 1963
Badger history "Early Industry" Chapter on ICE making

Audio-Visual:

Filmstrips from Brown County Library:
Map Making, 910.7
Wisconsin Scenes, 917.75
Natural Boundaries of Wis. 917.75
Natural Resources, 662.6
Natural Resources & Industrial Development, 973.8
Glaciation - A Multimedia Kit
ICE- office Kit 36

Community:

Science teachers
The owner of a gravel pit or sand pit
DNR representative

CONTINUED OR ADDED LEARNING ACTIVITIES

Cognitive: (cont.)

affect the geographic conditions.

In-Class: (cont.)

From this experiment the children could discuss the formation of the Great Lakes, Fox, Lake Winnebago, Wisconsin River and Mississippi River, relating their formation to glacier movement.
Experiment 2:

a. Needed are a large box of dirt and piece of ice.
b. Allow students to discuss how glacier could have formed the Kettle Moraine area.
c. Next show how the area was formed by allowing ice to melt and form hollows as in the Kettle Moraine area.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 6 Resources

SUBJECT Art

ORIENTATION Resource Distribution

TOPIC/UNIT Paper Sculpture (BAS-relief)

BEHAVIORAL OBJECTIVES

Cognitive:
The student will be able to create a BAS-relief design using a repeat motif of nature.

Affective:
The student becomes aware of naturally repeating patterns in nature.

Skills Used:
1. Drawing
2. Cutting
3. Gluing

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss the natural repeating designs in nature, the vein in a leaf, ocean waves, the rings in the cross section of a tree, onion, etc.
   1. Draw a repeat pattern on construction paper.

B. Cut sheets of construction paper into 1" strips. Apply glue to the edge and stick to background following pattern of the drawing.

   White on white works best because of the effect of light on the BAS-relief.

Outside or Community:

I. Art

   A. A walk just about anywhere to view how the repetition of design creates unity.

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SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

"Paper Sculpture, BAS-relief", School Arts, Sept. '70
"Paper to Amaze", M. Seehafer, Instructor, 81:73 Ap. '72
"Corrugated Cardboard Becomes Versatile Design Medium", Arts and Activities, Oct. '66
"Notching, Tabs and Slots", Arts and Activities, Nov. '70

Audio–Visual:

"The Art of Seeing (shapes)"
Warren Schloat Pub. Inc.
"Designs in Nature"
Environmental Awareness
ICE-RMC
Once geographical features and natural resources are dealt with Paddle to the Sea goes well. (Follet Publishers)
Paddle to the Sea is available in book and film form, from Brown County Library.

Community:

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E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 6- Resources **SUBJECT** Mathematics

ORIENTATION Halves and Quarters **TOPIC/UNIT** Fractions

BEHAVIORAL OBJECTIVES

Cognitive:
Differentiate between 1/2 of a whole object and 1/4 of a whole object by pointing to the fractional piece specified when both pieces are side by side.

Affective:
Deliberately examines the premise that things are not divided equally by finding a number of examples of parts, of objects that are not equal in size, weight, etc.

Skills Used:
1. Dividing circles and squares in 1/2 and 1/4's.
2. Recognizing and writing fractions
3. Discussion
4. Map reading

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

1. Discuss fractions.
   a. How to divide circles squares.
   b. Each part must be equal.
   c. How to write fractions.
2. Give the student 2 maps of Wisconsin which show the areas that have lumbering forests.
   a. Discuss the areas of half. Are the forests equally distributed? Which half has more?
   c. Take the 2nd map and cut into fourths. Label the 4ths and compare the lumber forests in each section.
3. Repeat the above procedure using another mineral or natural resource.
4. You can run a little contest asking the students to identify various parts such as 1/4 with no forests, etc.
5. Make a floor map of Wisconsin and divide into fourths. Run contest having students step into various parts of map, such as step on 1/4 spread to 3/4 continue.

(cont.)

Outside or Community:

1. Have a DNR member speak on distribution of trees in the area.
2. Have manufacturer of wood products in the area talk about how trees are used.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Things by Dunn, Phoebe and Tres **Audio-Visual:** Flannel Board and cutouts of 1/2 and 1/4 to show the relation of 1/2 and 1/4. Land and Water of Our Earth, Coronet **Community:** DNR Representative	In-Class: (cont.) 6. Each child make pies of 1/2 and 1/4. Cut apart. Make a spinner piece of tag board, paper fasteners, and arrow. Two children can play together. See who can complete their pies first.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 7 Land Use **SUBJECT** Language Arts

ORIENTATION Leisure Time **TOPIC/UNIT** Pantomime

BEHAVIORAL OBJECTIVES

Cognitive:

Perform through pantomime, an illustration of a leisure time activity.

Differentiate between activities that are harmful or harmless to the continuation of the environment as it is presently.

Affective:

Desire to develop an improved attitude toward the continuation or betterment of the environment by:

a. Accepting suggestions by others that will improve the environment.
b. Conducting the leisure activity in a manner that will not deface the environment any more than necessary, if at all.

Skills Used:

Dramatization
Making judgments.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Classroom
   1. Teacher will ask the students, "What is leisure time?"
   2. How many hours of leisure time do we have during a school day? A week-end? Summer time?
   3. Children choose a leisure time activity to dramatize.
   4. Each activity is listed on the board & class discussion as to wheather this activity caused a harmful effect on our environment.
   5. Children may classify these leisure time activities into suitabilities for:

	Children	Young People	Adults
Reading	x	x	x
Bike riding	x	x	x
Building blocks	x	x	x
Baseball	x	x	x
Singing	x	x	x
Playing dolls	x		
Swimming	x	x	x

Outside or Community:

1. Have a poster contest for those children who are interested.

"Good Ways To Use Time"

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 Land Use

SUBJECT Social Studies, Art and Math

ORIENTATION Transportation & Leisure Time

TOPIC/UNIT Wisconsin

BEHAVIORAL OBJECTIVES

Cognitive:
Locate places of interest (those specified in class) on a Wisconsin Dept. of Transportation (or similar) highway map.

Locate areas of high population density on the map in accordance to the definition giving in class and using the map legend.

Affective:
Demonstrate awareness of man's effect on nature by debating either the positive or negative view, including examples that support his position.

Skills Used:
1. Study road maps
2. Listing
3. Comparing
4. Drawing Conclusions

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Social Studies
- A. Leisure Time
  1. Discuss fun of local parks,
  2. Discuss fun of a river or lake with people fishing, swimming or boating.
  3. Discuss fun of a golf course.
  4. Discuss fun of a baseball game, basketball game, etc.
- B. Classroom
  1. Road map of Wisconsin or a chart to plot interesting places to visit.
     - a. Baraboo - Ringling Bros. Circus
     - b. Cave of the Mounds-cavern
     - c. Menominee Indian Reservation
     - d. Madison-capital
     - e. Eagle River forests
     - f. Door County - Cherryland

(cont.)

Outside or Community:

I. Outside Classroom
- A. Visit a nearby resort
  1. What recreational facilities does it offer to the tourists? How does the tourist industry help this resort community? Is it a tourist attraction all year-round? Will the sportsman enjoy himself? Are there evidences of pollution or carelessness?
  2. Send for postcards and make up a booklet on the national and state parks of Wisconsin.

II. Library
- A. Read history books to find out why cities like Milwaukee, Green Bay, Madison, etc. were begun. (fur trading centers located near water). What industries are there now? Is water still as important for transportation or has another means taken its place?

SUGGESTED RESOURCES

Publications:

"Drawing for Environmental Awareness", A. P. Taylor, il., School Arts. 68:12-13 March '69

Audio-Visual:

Films:
Wisconsin's Recreational Resources
A Study in Economic Geography, Color, 23 min., Univ. of Wis. BAVI
Wisconsin Interstate Highways, color, 15 min. Univ. of Wis., BAVI
The Milwaukee Way, Color, 52 min. Univ. of Wis., BAVI
Wisconsin History: Pre-Statehood, Color, 20 min., Univ. of Wis., BAVI (cont.)

Community:

Factory
Tour of Large city
Highway commissioner & county
Highway building
Chamber of Commerce

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

g. Green Bay- Packers,
h. Milwaukee - Old Milw. Days, Museum
i. Rib Mountain - highest elevation
j. Etc.

2. Why would you choose to visit these places? How would you travel? Draw route on road map. Compute the number of miles from your home. How many miles per gallon of gas does your car get? How much money would the gasoline cost? What other expenses would you encounter?
3. Make poster about good manners while on a trip or general outdoor manners.
4. List use of land in a city and then list uses of land in country. (Name 2 familiar areas - one in the city and the other in the country). Why do city people come to the country? Why do country people go to the city?
5. Report on a product made in a Wisconsin factory. Child shall write to his selected factory asking for information. (Number of employees, products made, where raw materials come from, cost of finished product, source of power, what they do with their waste materials, and in some cases the children may ask to have a guided tour of the industry or a picture of the factory in operation to see if there is pollution.)
6. Show filmstrip or slides about Milwaukee, What is the population? If every family owned a ranch style home and had a family of 4, how many homes would be needed? This would be unreal, so how has man adapted cities to conserve space? (tall buildings) Make a large city diorama - include highways, industry and business places, houses and sky-scrapers, recreational areas, many people and traveling vehicles.
7. Show film on highway construction. What machinery is used? Does it destroy valuable land, timber or water areas? How will the new highway affect the community? Ask highway commissioner to tell why that site has been chosen and tell about his job. Visit county highway building (cont.)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-class: (cont.) to see machinery. View roads under construction. 8. Make survey chart: Where Dad Works Dad's Name / Where Employed / No. of Miles to work / Method of Transportation / How Long it Takes To Travel This will indicate that Dad lives within commuting distance of his work. Does he lessen pollution by riding with others? You can make up more titles to the chart that are significant. II. Social Studies, Art or Both A. "Before" and "After" scenes of a given area using a shadow box diorama or discussion. Examples of choices: 1. A woodland becomes a suburb 2. A clean lake becomes a polluted overpopulated tourist trap 3. A rural area becomes a large city 4. A junk yard is cleaned up 5. A cart trail becomes a freeway interchange 6. An Indian canoe is replaced by an ocean liner 7. A parade route before and after the parade (litter)
Audio-Visual:	Audio-Visual: (continued) "Nation of Spoilers", Brown County Library "Ecology - The Game of Man and Nature", ICE-RMC SG2 "Dirty Water: The Water Pollution Game", ICE-RMC SG3
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 Land Use

SUBJECT Art-Social Studies-Language Arts

ORIENTATION Population Density and Land Use

TOPIC/UNIT Housing

BEHAVIORAL OBJECTIVES

Cognitive:

Write a short description of the effect of population density on different types of neighborhoods, and make sketches or illustrations that support his description.

Affective:

Demonstrate awareness of different types of neighborhoods and the effect of density on them, by locating an example of each type within his own community, or if any are lacking, he will state which are not present.

Skills Used:

1. Constructing
2. Critical thinking
3. Writing
4. Projecting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art
   A. Creation of buildings from boxes or discuss.
      1. Population growth can be the center of interest, if size and type of building are stressed in connection with family living:
         a. Small House
         b. Large house
         c. Apartment building
         d. "A" frame house
         e. Grass hut
         f. House on stilts
         g. Adding new rooms to an old house (remodeling)
      2. Create background for the above list. Backgrounds should be of:
         a. Rural
         b. Small town
         c. City
         d. Large city
         e. Harbor town
         f. Industrial city, etc. (cont.)

Outside or Community:

I. Field trips into various types of neighborhoods. students bring in pictures of various types of neighborhoods.

II. Resource books to see unfamiliar types of homes.

III. Walk in the neighborhood to determine the different types of homes in your own area.

SUGGESTED RESOURCES

Publications:

"Creative Paper Design", Reinhold Pub.
"Paper To Amaze", M. Scehafer, Instructor, 81:73 April '72
"City Scopes in 3D", M.B. Bowman, Arts & Activities, p. 36-7, June '71
"Aeathetic Education for What" (art in relation to capacity) School Arts, April '72, p. 37
ICE Field guide , Land Use - A Simulation Activity ICE-RMC

Audio-Visual:

"People of a City", Brown County Library
"Environmental Awareness - City", Kt 16 ICE-RMC
"Creating With Paper", B.F.A. BAVI
Pictures of Old and New Transportation models.
Plastic models of cars, planes, etc.
Slides showing models of transportation.
Ecology - The Pollution Problem Kt 39 ICE
A.V. Kit #51 D Earth and the

Community: (cont.)

Museums
Railroad Museum
Airport

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

II. Social Studies
  A. Discuss problems which may occur in the future as population increases and the environment must be used to the best advantage to accommodate the people.
    1. Will there be room?
    2. What if land areas are not available?
    3. Where could people live?
    4. How could these areas be used?
  B. The students will design or discuss "Homes of the Future".
    Examples:
    1. Space rocket homes
    2. Submarine homes
    3. Tree houses
    4. Floating homes
    5. Anything they dream up!
  C. They may simply draw these homes or they may construct them with a variety of materials.

III. Language Arts
  A. Have students write an imaginary story on how they think their community will have changed by the time they are grown up.
    1. Consider population increase or decrease.
    2. Outdating of businesses and industries.
    3. Transportation changes.

IV. "Don't Use Traffic Jam on Peanut Butter Sandwiches" (for complete activities, see attached)

Audio-Visual: (cont.)

Cultural Invasion (Problems of Progress) ICE-RMC.
Film #480 Urbanissmo ICE-RMC
Cartoon feature of a farmer looking at city. Shows attractions and contrasts.

George Howlett, Jr.
Environmental Education Specialist
Project I-C-E
1927 Main Street
Green Bay, Wisconsin 54301

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DON'T USE TRAFFIC JAM ON PEANUT BUTTER SANDWICHES
(Beginner Level)

An Urban Field Experience for
Grades 1-6 based on:

Concept #5 An adequate supply of clean air is essential for life.

and

Concept #7 Factors such as facilitating transportation, economic conditions, population growth, and increased leisure time have a great influence on changes in land use and centers of population density.

If you were to own and drive an automobile, one rule you would learn is that you cannot run it in a place like a garage with the doors closed. If you do you would become very dead in a short time. Auto engines produce dangerous fumes. One of these is a poison called carbon monoxide. Other fumes help form a smoky fog called smog. The more autos running around, the more smog there may be. Smog may cause lung disease. Smog kills some plants. Smog is dirty air. Other things cause smog too, but the auto is a number one smog starter in many places.

Many autos going places at one time may cause traffic jams. People may even get around faster on bicycles than in cars. People in traffic jams get upset and angry. They lose time for other things.

Many autos in a city means having many places to park. We now build buildings in which to park cars. To make traffic go faster, we tear down homes and stores and put in freeways. Freeways take land from farmers. They may go through parks, forests, and nature areas. They may fill in good marshes where ducks live. Streets use land which then can't be used for other things.

People have cars because it is easy to get around. But each year there are more and more cars. To find out how many cars are going around polluting the air and using land space, do the investigations which your teacher helps you select.

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Teacher Note:

Sections of this problem study of urban traffic may be used by lower elementary students. The teacher will need to discuss the material, select appropriate investigations and give clear directions. Teachers have permission to extract portions of this material appropriate for class use and reproduce them.

I. Preparing to investigate local traffic patterns

A. Locating yourself

1. Obtain a local street map

2. Enlarge the section of the map area around your school on large poster board. Print the street names on your map. Mark the location of your school on the map.

3. Mark the stop signs and stop-and-go lights you have seen before in the right places on the map.

4. Mark the streets that have "through traffic" with red arrows. Mark the other streets with blue arrows.

B. Selecting places to study traffic

1. Select a place where two streets with through traffic cross. Mark it A.

2. Select a place where through traffic crosses local traffic. Mark it B.

3. Select a place where two local traffic streets cross. Mark it C.

C. Cinema Time

Your teacher may have scheduled a film or filmstrip to help you think more about the problems of traffic and air pollution. Here are some for the teacher to look up.

Automania 2000 (animated) Contemporary Films/McGraw Hill, 828 Custer Avenue, Evanston, Illinois 60202.

Boomsville, Learning Corporation of America, 711 5th Avenue, New York, New York 10022. (Growth, technology and its results.)

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II. Traffic Investigation

Student teams may make a sign that says "traffic count in progress" to carry with them. Different teams may be assigned to do various parts of this investigation at the same time.

A. Basic traffic count

1. Select a busy street corner (marked A on your map). Work in teams of three each. One person is the car counter, one person is the truck and bus counter, and one person is the marker. Count all the cars coming one way on one street for 10 minutes. Different teams should count the traffic from different directions (street 1 or 2, way 1 or 2) on different streets. You may need to have the teacher call out starting and stopping time.

   The marker should use dash marks to mark count.

2. Some teams may go to Corner B and do the same.

3. Some teams may go to Corner C and count the traffic there. (The class may go as a whole or aides may take some teams.)

Traffic Count Chart

Street _____ (1)(2) Time of count _____ min.

Traffic direction(way) _____ (1)(2) Time of Day _____

Kind of street _____ Corner (A)(B)(C)

Vehicle	Dash Count	Total
Cars		
Trucks		
Buses		
Taxis		
Motorcycles		
Bicycles		
Other		
	Total Vehicles	

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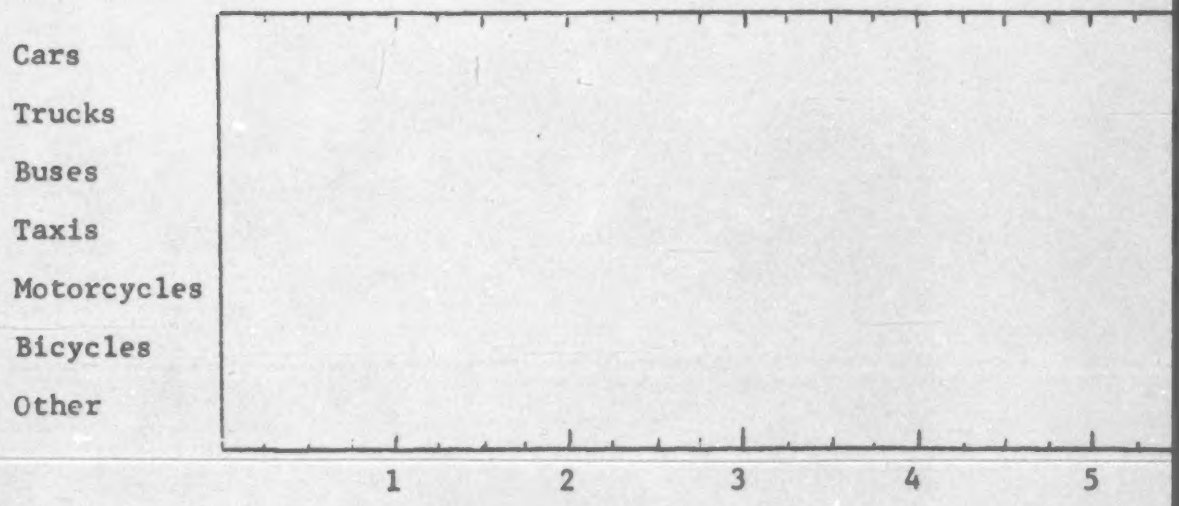
For students who can do multiplication.

Find out how many cars, trucks and other assorted vehicles use the street per hour, multiply each total count by 6 (if you used the 10-minute time count) to get units per hour.

	10-min. total count		units per hour
Cars	_____	x 6 =	_____
Trucks	_____	x 6 =	_____
Buses	_____	x 6 =	_____
Taxis	_____	x 6 =	_____
Motorcycles	_____	x 6 =	_____
Bicycles	_____	x 6 =	_____
Other	_____	x 6 =	_____

Using the figures from your original 10-minute count make a bar graph showing the use of the street by different vehicles--select an appropriate unit. Perhaps 20 vehicles per 1/4 inch.



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4. Find out how many vehicles pass Corner A, B, & C.

Corner A

Street 1 Way 1 _____

Street 1 Way 2 _____

Street 2 Way 1 _____

Street 2 Way 2 _____

Total _____

Corner B

Street 1 Way 1 _____

Street 1 Way 2 _____

Street 2 Way 1 _____

Street 2 Way 2 _____

Total _____

Corner C

Street 1 Way 1 _____

Street 1 Way 2 _____

Street 2 Way 1 _____

Street 2 Way 2 _____

Total _____

Total Corner A _____

Total Corner B _____

Total Corner C _____

Did you guess which is the busiest corner?

Yes No

B. Rider Count

Count the number of riders per car and bus for 10 minutes at one of the corners. Again different teams may go to different corners. Teams count way 1 or 2 on street 1 or 2 as before. Use dash count.

Rider Count Chart

Street _____ (1)(2) Time of count _____ min.

Traffic direction(way) _____ (1)(2) Time of day _____

Kind of street _____ Corner (A)(B)(C)

Vehicle	Dash Count	Total
Car		
Persons		
Taxi		
Persons		
Bus		
Persons		
Total Persons	Total Vehicles	

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For students using fractions or decimals, find out average number of persons

$\frac{\text{Persons}}{\text{Vehicles}}$ = Rider Average

per car _____

per taxi _____

per bus _____

C. Smog Count

Record the number of vehicles with smoky exhausts on a busy street corner over a 5 or 10 minute period.

Smog Count

Street _____ at Street _____

Time _____ Time of count _____min.

		Total
Smoggy cars		

D. Noise check

Use a portable tape recorder to record the traffic sounds for 5 minutes at a busy corner. Play back in class and let classmates tell what they think it was like at your corner.

E. If there is a stop-and-go light near the school, time how long the green light lasts in each direction with a watch. If you counted cars at this corner, compare the car counts to the light times. Do you think the city should change the light timing?

Go time Street 1 _____ Car count Street 1 _____

Go time Street 2 _____ Car count Street 2 _____

F. Pedestrian (walker) count

Count the number of people who pass a busy street corner for 10 minutes.

Walker Count Corner (A)(B)(C)

Time of day _____ Time of count _____min.

		Total
Walker		

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Write down problems walkers have with traffic.

G. Land use count (5th grade up)

1. On a quiet street use tape measure or ruler to measure the area of a street block. Set out a safety patrol at each end of the block with signs to warn of road survey.

   Cross street width _____

   Length of block _____

   Area of block = length x width _____

   Determine how much land one city street uses.
   Long blocks are 10 per mile (about).
   Short blocks are 12 per mile (about).

   Use a street map to find out how long a particular street is. How much land does the street use?

2. Do the same for a parking lot. How would you determine how much land in a city is used for parking lots?

III. Follow-up Activities

A. Idea Time

1. Class teams exchange information to fill in missing blanks.

2. Class discussion time on what students feel about traffic.

   Ideas to talk about:

smog	smells	land used
noise	riders	traffic jams
dangerous drivers	walkers	air pollution
public transport		using bicycles
road safety and manners		
gasoline use		

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B. Resource time

Use the IMC or library to investigate more on the problems of:

City air pollution
The auto and air pollution
Kinds of auto engines
Air pollution standards
Traffic and people
Traffic and space
Public transport
Bicycle transportation
Gasoline and fuel supplies
Road construction

C. Causes and Solutions

Use one or more of the following skill areas to help each other understand causes and solutions to the traffic problem.

class discussion
mural construction
writing a playlet
construct an enlarged traffic count chart to display
panel discussion
reports
write or read poems

Resources for the Teachers and Students

The Traffic Jam: Problems of American Society, Washington Square Press.

Water and Air Pollution: Problems of American Society, Washington Square Press.

Air Pollution, Lavaroni and O'Donnel, Addison-Wesley.

Needed: Clean Air, (obtain from Environmental Protection Agency.)

Your Car and Clean Air, Automobile Manufacturers Association, 320 New Center Building, Detroit, Michigan 48202.

A Citizen's Guide to Clean Air, The Conservation Foundation, 1717 Massachusetts Avenue, N.W., Washington, D.C. 20036.

The Wisconsin Tuberculosis and Respiratory Disease Association, 140 Bell Street, Neenah, Wisconsin 54956.

Environmental Protection Agency, One N. Wacker Drive, Chicago, Illinois 60606.

Produced under Title III, E.S.E.A. by Project I-C-E.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 Land Use

SUBJECT Art - Music

ORIENTATION Influence for Change

TOPIC/UNIT Drawing & Painting - Design

BEHAVIORAL OBJECTIVES	STUDENT–CENTERED LEARNING ACTIVITIES	
	In-Class:	Outside or Community:
Cognitive: Prepare an album cover which illustrates harmful effects of pollution on an area.	I. Art A. Design a record cover for a pollution type song. 1. Students can use a commercially known song about pollution or make up their own song before beginning this lesson.	I. Art A. Have students bring in commercially designed album covers; some current popular groups and some of older groups.
Affective: Willingly prepare a visual representation of his view on the affects the consumer's choice. Indicate his acceptance of the idea that a visual presentation will positively or negatively affect a persons actions by preparing a visual that will tend to have the person act in a (cont.)		
Skills Used: 1. Drawing and painting 2. Good design principles 3. Advertising principles		

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Maurello, S. Ralph, "Commercial Art Techniques", Tudor Pub. Co., New York, 1952 Brinkley, John, "Lettering Today", Reinhold Pub. Co., New York, 1961 ICE Field Guide (attached) "Don't Use Traffic Jam on Peanut Butter Sandwiches" **Audio-Visual:** Pollution oriented records Check music curriculum for ecology centered records **Community:**	Affective: (cont.) positive manner toward reducing pollution.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 7 Land Use

SUBJECT Art

ORIENTATION Land Use

TOPIC/UNIT 3-D Paper Design Collage

BEHAVIORAL OBJECTIVES

Cognitive:
Through projects, Illustrate how man uses land to solve such problems as facilitating transportation or population density, through the making of a collage.

Affective:

Judges man's use of his environment to solve his problems, as being either positive or negative in its betterment of the environment.

Skills Used:
1. Accuracy
2. Visual awareness
3. Drawing
4. Cutting
5. Pasting

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Before and after scenes of factors involved in Concept No. 7.
These before and after scenes are arranged on an accordion-pleated suface so that three pictures are created from two actual pictures depending on what angle the surface is viewed from. The 3rd is the abstract art combination of the 2 real posters. (Illustration on back)
Example: A farming area is transformed into a freeway interchange.)
   1. A picture of a farm is cut into 5 strips. These strips are pasted in correct order on the right half of each pleat.
   2. A picture of a freeway is cut & pasted onto the left half of each pleat.
   3. When viewed from the right angle one sees a farm; when viewed from the left one sees

(cont.)

Outside or Community:

I. Art
   A. Observe areas where street or highway construction is in progress. How is the environment affected?

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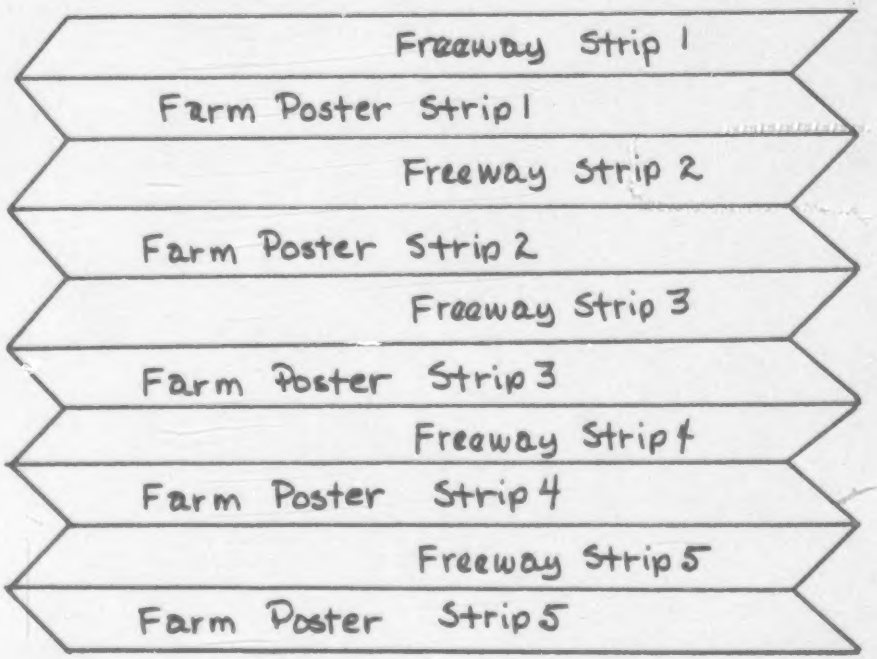
SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Magazines from which students can cut pictures **Audio–Visual:** **Community:**	In-Class: (cont.) an abstract design. I. Illustration



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E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 8 Values and Attitude **SUBJECT** Language Arts

ORIENTATION Cultural Enrichment **TOPIC/UNIT** Poetry

BEHAVIORAL OBJECTIVES

Cognitive:

Write or select poetry which illustrates the attitude of most people before 1960 toward the environment.

Affective:

Appreciate natural artistic creations of nature by selecting this type of site to view on a trip and make favorable comments while viewing it such as "Nature made wonderful things to See."

Skills Used:

1. Library
2. Exploration
3. Discovery
4. Reading poetry
5. Writing poetry
6. Listening to poetry

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Discuss the natural repeating designs in nature, the vein in a leaf, ocean waves, the rings in the cross section of a tree, etc.
   1. A walk just about anywhere to view how the repetition of design creates unity.
   2. Depending on the season of year, concentrate on an appropriate color: green or brown, blue, or white, etc.

B. Read several poems to children.
   1. Discuss the type of person who could write things like this about color. How do you think the author feels about his environment.
   2. Discuss the senses the author used.

C. Write a poem telling about the color being emphasized.

D. Introduce pupils to the idea of what an anthology of poems is by having them select poems which they enjoyed. Explain what

(cont.)

Outside or Community:

I. Children, armed with notebooks and a pencil, go outside and look for things that color, touch, and collect if reasonable. Smell, perhaps taste. Do you hear anything from that color?

II. Library:
   a. Read additional poems
   b. Do research on Mary O'Neill.
   c. Divide class into groups to locate in library categories of poems dealing with nature. Categorize poems into "Animals", "Trees", "Flowers", etc.
   d. Pupils add own poems to copied poems to assemble booklet with their own paintings, printing and cover.
   e. Invite other classes to hear poems and see booklets.
   f. Booklets could be given to shut-ins.

SUGGESTED RESOURCES

Publications:

Hailstones & Halibut Bones,
Mary O'Neill, Doubleday & Co.,
Inc., Garden City, N. Y., '61
Children's Anthology
Poetry by following writers:
Eugene Field
Robert Louis Stevenson
Henry Longfellow
James Kiley .
The MacMillan English Series 4,
MacMillan Co., 1969.

Audio–Visual:

Recordings of poems and nature sounds to set up "walk" experience.

Community:

State Historical Society
Other sources of nature poems

CONTINUED OR ADDED LEARNING ACTIVITIES

In-class: (cont.)

ANTHOLOGY MEANS.
1. Pupils read favorite poems.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 8 Values and Attitudes

SUBJECT Mathematics for Advanced Students

ORIENTATION Attitude Toward Environment

TOPIC/UNIT Comparison by Subtraction

BEHAVIORAL OBJECTIVES

Cognitive:

Collect and compare data on the use of environment for recreation in his area through the use of a questionaire.

a. Number of recreation types available
b. Extent of land use for each type
c. Positive or negative affect on the environment
d. Extent of use by people in the area.

Affective:

Support positive use of the environment for recreation, by composing written examples of ways persons can use the environment for recreation without destroying it.

Skills Used:

1. Recording data on a Comparison by subtraction
2. Generalizing from data

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. You will survey use of recreational facilities.
   1. Prepare and distribute a questionnaire on use of the environment for recreation. (sample on reverse side)
   2. Put the data onto the table.
   3. Find the difference between the positive and negative response for each age group.
   4. Find the difference between age group responses to the questions.
   5. Using the data and the figures from subtraction, write a summary statement on the change in attitude and use of environment for recreational purposes.

(cont.)

Outside or Community:

I. Plan the food needed for a picnic lunch for the class and go to a nearby wayside or park.

II. Have a person from the Park and Recreation Commission of a nearby city speak to the class. Ask him:
   1. To use a map to locate the area he works.
   2. To tell when the park was established.
   3. Who finances the building of a park.
   4. Tell how we might get a new park started.

III. Using a catalog calculate the cost of camping equipment for a family of 5.

IV. Find out the amount of money being spent on local parks in your area, state parks, national parks.

SUGGESTED RESOURCES

Publications:

E.Q. Index from ICE-RMC V.F.
The Environmental School
120 Me from ICE-RMC
Camp Recreation - Wausau
ICE-RMC
The Best Nature Writing
of Joseph Wood Krutch ICE-RMC
Biennel Report of DNR
ICE-RMC V.F.
Door County Natural Beauty
Summary Reports ICE-RMC

Audio-Visual:

K. No. 5 Aggradation Degradation
ICE-RMC
Nature is for People BAVI
National Parks BAVI
Adventuring in Conservation BAVI
Camp Happiness BAVI

Community:

Park Director
DNR Person
Game Warden
Campsite Director

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

I. QUESTIONNAIRE

(Age grouping - Circle one over 50, 49-16, under 15

1. Does your family own a camper, tent, or cottage? YES - NO
2. Have you been to a state park? YES - NO
3. Do you go to parks and waysides in your area? YES-NO
4. Does your family go swimming or to the beach? YES-NO
5. Have you flown a kite? YES-NO
6. Would you contribute $10.00 to the building of a new park? YES-NO
7. Do you go fishing or hunting? YES-NO

DATA SHEET

Age	Under 15		49-16		Over 50	
	Number Yes	Number No	Number Yes	Number No	Number Yes	Number No
Question No. 1						
No. 2						
No. 3						
No. 4						
No. 5						
No. 6						
No. 7						

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 8 Values and Attitudes

SUBJECT Social Studies

ORIENTATION Environmental Action

TOPIC/UNIT Political Campaign Turned Environments

BEHAVIORAL OBJECTIVES

Cognitive:

Explain the value of a campaign approach to develop an awareness of a problem in the general public.

Affective:

Desire to develop an environmental awareness in others by creating buttons, banners, etc. for an environmental campaign.

Skills Used:

1. Lettering
2. Composition
3. Printing
4. Slogan writing
5. Campaigning
    1. Create campaign buttons and other symbols.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Political Campaign
    1. Students could do a take-off on a political campaign. Their campaign could be an environmental idea.
    2. Possible ideas for their campaign might be buttons, banners, circulation papers-no orange peels, candy bar paper or paper from lunches. This is an excellent group activity and should give students opportunity to work together and develop social adaptivity. Discuss phosphate pollutants. Consult issue of Conservation Ed. Assoc. issue "Guidelines for Citizen Action on Environmental Action". Contains a list of detergents and their percentage of phosphates. Student check own phosphates in detergents to compare.

(cont.)

Outside or Community:

I. This activity could be centered around earth week.

II. This activity might also work out well in conjunction with a unit on politics in Social Studies

SUGGESTED RESOURCES

Publications:

"Drawing With Mixed Media" M.B. Bowman, Sct. Arts 71 14-15 N. '71
"Color Combinations Made Exciting", K.G. Kite Arts & Activities, 71:24-6 2 '72
"Photomantage the Juxtaposing of Images", D. Cyr Arts & Activities 66 26-9 Ja '70
Conservation Ed. Assoc. Guidelines for Citizen Action on Environmental Problems. (cont.)

Audio-Visual:

Films:
The Gifts, Project ICE-RMC
Garbage, Proj. ICE-RMC
The Cars in Your Life, McGraw-Hill.

Community:

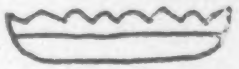
Mother relates positive opinion toward new low phosphate detergents.
Land owner may have slides or lead tour of damages by snowmobiles or minibikes.
Park official for same purpose as land owner above.

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

Campaign for right detergent. Make list to send home. Experiment making suds in sink. Observe how much water is used to get rid of suds from sink.

3. Create environmental slogans.
4. Have children relate experiences of being in a closed environment as a room, or char, where a smoker or smokers have caused room to be smokey and stuffy. "Average New Yorker inhales air equivalent to 38 cigarettes a day". Adding to this will add to problems of health and to his environment.
5. Impress that only a few years ago, adult smoking was not criticized. Then give examples how cultural attitudes have changed.
6. Using bottle caps, glue, safety pins and white cardboard make campaign buttons, cardboard should be cut to fit into bottle cap.



Draw and color or paint design. Glue into bottle cap. Tape or glue pin to outside of the bottle cap. As soon as it's dry, it's ready to wear.

Publications: (cont.)

Project ICE-RMC.
Air & Water Pollution by Gerald Leinwalk, Wash, Sq. Press.
The Only Earth We Have by Lawrence Pringle, MacMillen.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 9 Management

SUBJECT Art, Science

ORIENTATION Land Use and Zoning

TOPIC/UNIT Natural and Man-Made Changes in the Environment

BEHAVIORAL OBJECTIVES

Cognitive:

Observe visual characteristics of a given environment and identify the environment as the result of a planned positive change or a negative change.

Affective:

Demonstrates his perception of the effects of uncontrolled changes in his environment by selecting examples within his own community.

Weighs alternatives actions for a particular land area for achieving high production of crops and select the one with the least negative effects on the environment.

Skills Used:

1. Subtractive sculpture
2. Measuring
3. Recording
4. Direction following
5. Drawing conclusions
6. Evaluation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Art

A. Cube photographs of man-made development vs. the natural environment.

1. Collect photographs. May be a number of examples of nature such as: trees, leaves, flowers, stones, stream, lake, field.
2. Collect photographs of various examples of man-made impacts as factories, roads, billboards, buildings, etc.
3. Assemble these photographs on a cardboard cube displaying the man-made environment vs. the natural aesthetics.

II. Science

A. You will work with soils.

1. Fill three boxes with a low-quality dirt containing gravel, clay, etc.

(cont.)

Outside or Community:

I. Invite a farmer to talk about the use of chemical fertilizer and insecticide.

II. Agent can talk to the students and offer statistics and facts on the influence of fertilizer.

III. Have an environmental expert such as Project ICE George Howlett come to your school and explain what happens when man unthinkingly exploits his environment.

SUGGESTED RESOURCES

Publications:

Thomas William L. (ed) Man's Role in Changing the Face of the Earth
Chicago Press 1956
Environmental Science Center
Nov. 1970 "Ecology - A Handbook for Environmental Action - What Can I Do?"
Ecology: The Farm Benziger
ICE-RMC 130 Mc
Our Man-Made Environment
ICE-RMC

Audio-Visual:

"Discovering Life Around Us"
"A Visit to the Farm"
Encyclopedia Britannica Films
Rental and Purchase Library
425 North Michigan Avenue
Chicago, Illinois 60611
"Ecological Imbalances"
FS St 2 at ICE-RMC

Community:

Consult with a farmer on problems of his field areas and learn his recommendations.
Visit a greenhouse. Get a gardeners views on soil requirements. (or successful gardeners in the area.

CONTINUED OR ADDED LEARNING ACTIVITIES

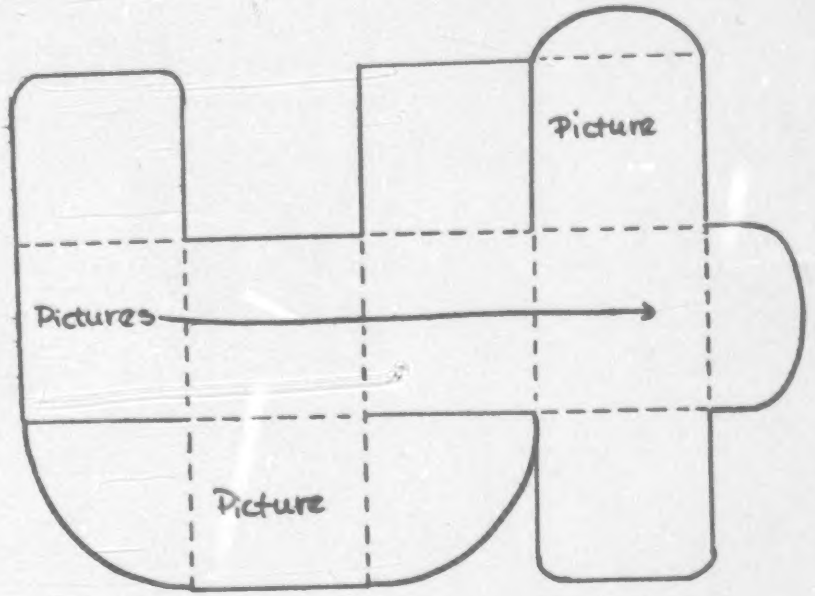
In-Class: (cont.)

2. Germinate bean seeds & plant them in the boxes.
3. Obtain a quality water soluble fertilizer & plant food. Box #1 mix half the recommended dosage in 1 cup of water; for Box #2 mix the full recommended dosage in 1 cup of water for the plant. For Box #3 water the plant with water only.
4. The students must carefully measure and record the water and plant for the boxes.
5. As the plants grow, have the students measure the plants' progressive gain in height (every two days) in centimeters and record it.
6. Compare the gains in height in the boxes receiving plant food. Graph the results of each box so progress can be observed.

B. Man has the ability to change his environment, but there are some aspects of it that can only be changed so much before they collapse and as a strong, useful part of our environment, they are no longer of any use. (Through a sculptural activity we can demonstrate this fact.)
   1. A bundle of 15-20 straws are glued together using Elmer's glue, giving you a strong free form sculpture.
   2. Once your sculpture has dried take a cutting instrument and begin cutting sections and parts off your sculpture to make it more interesting.
   3. The success of this project for the student will illustrate the fact that man can remove and change things in his environment but it must be done carefully or he will end up ruining it just as the student will ruin his sculpture if he removes too much of his sculpture for cuts without thought.

(cont.)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (cont.)
Audio–Visual:	CONSTRUCTION OF THE ENVIRONMENTAL CUBE
Community:	



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E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 9 Management

SUBJECT Art

ORIENTATION Manipulation

TOPIC/UNIT Collage

BEHAVIORAL OBJECTIVES

Cognitive:

Through a project, the student will identify the difference between man-made and natural environments.

Construct a collage that illustrates the difference in appearance between man-made and natural environment.

Affective:

Demonstrate an awareness of the difference between the man-made and natural environments, by identifying examples of each within the community.

Argues the position that man-made environments can be better than a natural environments can be better than a natural environment: (cont.)

Skills Used:

1. Collage
2. Construction

STUDENT-CENTERED LEARNING ACTIVITIES

In-Class:

A. Cube photographs of man-made developments vs. the natural environment.
   1. Collect photographs. May be a number of examples of nature such as: trees, leaves, flowers, stones, stream, lake, field.
   2. Collect photographs of various examples of man-made impacts as factories, roads, billboards, buildings, etc.
   3. Assemble these photographs on a cardboard cube displaying the man-made environment vs. the natural aesthetics.
   4. Cube diagram on other side.

When you work on your photo-cube the sketches will help you remember the kind of pictures you saw on the trip. You can draw or find the pictures you want to use.

(cont.)

Outside or Community:

A. Take a sketch book along on a walk and make 4-6 quick sketches of different things you see that you might want to remember for a little while
   1. Take a field trip to the city, factory, local dump, construction area to observe man's impact on the natural environment.
   2. Take a field trip to a farm, nearby field, park, or wildlife area to note the natural environment.

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SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

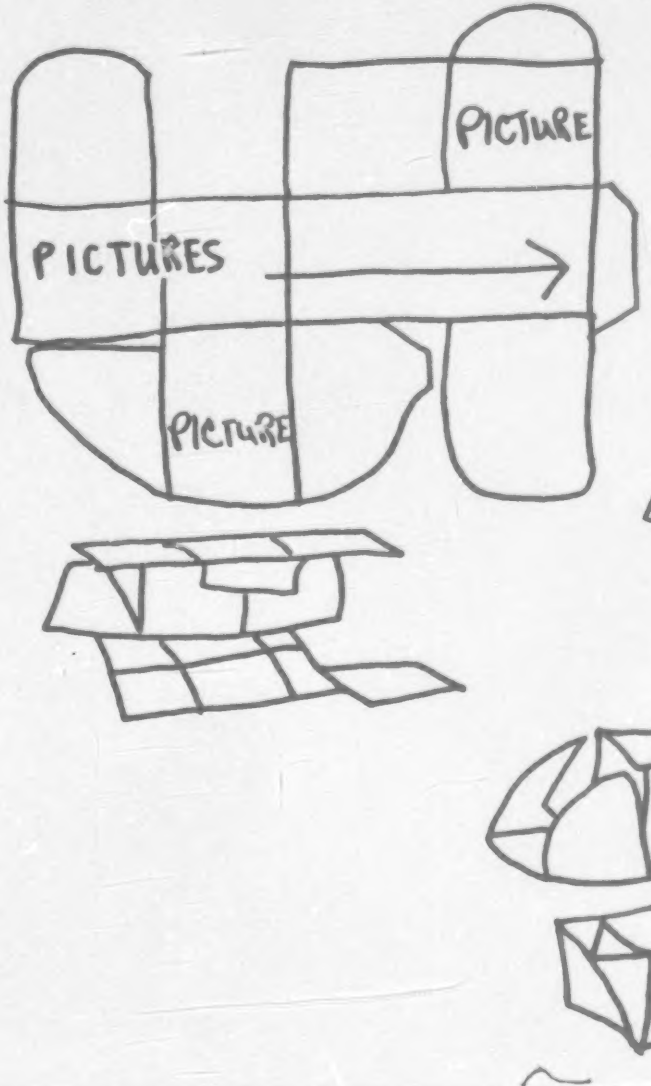
Our Man-Made Environment, ICE-RMC

Audio-Visual:

Community:

In-Class: (cont.)

CONSTRUCTION OF THE ENVIRONMENTAL CUBE



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SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Affective: (cont) a. Aesthetic value b. Continue as is for a longer time
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 10 Economic Planning

SUBJECT Science - Social Studies

ORIENTATION Water Conservation

TOPIC/UNIT Water Pollution

BEHAVIORAL OBJECTIVES

Cognitive:
Through investigation and discussion. Contrast the short term marketing concept of industry with the long term values lost by the environment through the extraction of resources.

a. Jobs
b. Well being of people in the community
c. Aesthetic value

Affective:
Agree to the need for control of agencies, and people who do not take precautionary measures to ensure an unpolluted environment for the future.

Skills Used:
1. Investigation
2. Panel Discussion
3. Evaluation
4. Compare - Contrast

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Science
   A. Discuss factories produce color tissue, colored toweling or napkins. Dyes released pollute streams visually & biologically be discoloring the water. Yet people buy them because they are attractive. Demonstration:
      a. Soak colored tissue, paper or napkin in a container of water. Does water become discolored? Also soak white ones & compare.
      b. Get Rit dye and dye a piece of material. Water turns color. Pour into a larger container of water (as factory pours dye-color water into a stream).
      c. Encourage children to tell others why they should use white rather than colored papers.

(cont.)

Outside or Community:

I. Have a county agent or county forester visit the classroom & discuss aspects of a local problem.

II. Discussion: Cars are the chief cause of air pollution because they use gasoline & oil for fuel. Take a trip to local new car garage. Ask car dealer to point out the air pollution control equipment. Compare the cars engines. Generally, the cars with the smaller engines cause less pollution than the larger and more powerful ones. Do not let the car idle. Have scheduled check-up for it.

III. Let pupils stand by the muffler of the car or bus. Start the vehicle. Smell the exhaust. Make sure you do not do this too long.

IV. Visit a farm or discuss with county agent some questions on crop rotation, strip planting, diversified farming, plowing under, drainage, fertilizer, stressing the value of soil resources.

SUGGESTED RESOURCES

Publications:

How Man Has Used the Soil
How Man Conserves the Soil
Ency. Brit. Ed. Corp. #736
Ranger Rick, National Wildlife Foundation
Cons. Ed. Assoc. Pub., available from ICE people

Audio-Visual:

Filmstrips:
Our Forests & What They Mean to Us
634.9 Green Bay Public Library
America's Dairyland
G-108-120 Using Our Trees Wisely, CESA
Films:
Wisconsin Agriculture
Timber of Our Times
Mil. Jour.
The Lumberman, EBF
From Trees to Paper, B&W, 12 min.

Community: (cont)

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

Set up a paper display of white & colored tissue, toweling & napkins. Choose the less pollutants.

II. Social Studies

A. Investigate several industries having a very direct product--environment relationship.
   1. Lumbering -- Many forests ravaged by profit seekers.
   2. Mining - The scenic beauty lands, homes and streams are destroyed.
   3. Farming - Soil erosion and pesticide damage.

B. Set up panel discussion contrasting the market economy concepts of industry, etc. with the long-term values lost to the environment by unenlightened exploitive extractive if the resource.

C. Discuss the concept behind the term "penny wise, pound foolish".

D. Possible areas for further discussion: Forest industries vs. groups like Audubon or wilderness watch.
   Open pit mine industry vs. beautification group.
   Farmer who uses wasteful practices with Soil Conservation District office.

Audio-Visual: (cont.)

Am. Forest Products, Indus. BA\I
The Cars in Your Life, McGraw-Hill

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 10 Economic Planning

SUBJECT Social Studies

ORIENTATION Depletions of Trees

TOPIC/UNIT Supply and Demand of Trees

BEHAVIORAL OBJECTIVES

Cognitive:
Compare the supply and demand of timber consumption in the local community or nation in a discussion.

Affective:
Accept the idea, that without proper planning and use of timber resources the supply will soon be depleted.

Weigh the advantages and disadvantages of using only white paper in all of the school activities in which he is involved.

(cont.)

Skills Used:
1. Problem solving
2. Critical analysis
3. Discuss in groups

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. There is a rule of thumb after quoted: 19 trees produce a ton of paper. Have student think in terms of 1 tree producing 200 lbs. of paper.

B. Weigh the amount of used paper discarded in the class or entire school if possible each day for a week or more.

C. Equate this to the number of trees it required to make this paper.

D. President Nixon's policy on housing.
Five-year goal of 3 million new housing units annually requiring 60% more timber and 7 billion board feet more annually from national forest.
*(Teacher Discussion Question) Can this be done and still maintain a policy of multiple use and sustained yield? Or will the urgent need for timber clash with other environmental values - wildlife,

(cont.)

Outside or Community:

I. After examining the waste paper collection of the classroom or school, the class will prepare a tape, slide or picture presentation of the amount of paper used.

II. Students interview other teachers or students of other teachers to find out if they are making a conscious attempt on the part of students to use paper wisely.

III. Invite or interview city planner. Discuss zoning - growth projections.

IV. Invite a representative of a local paper mill to talk to the class about how they select the timber that is cut for their use in making paper Where is the forest from which they cut? What kinds of trees are most commonly used paper products? (or visit paper mill).

(cont.)

SUGGESTED RESOURCES

Publications:

Poster: "If We Don't Preserve This Natural Beauty, Life will Become a Dead Issue."
Mem Co., P.O. Box 273, New York 10046.
$1.00 17" x 22" color poster
Eagle over wooded mountain range.
Badger History "Lumbering"
Exploring Wisc. Romano Geogriady,
Exploring Wisconsin, Follett

Audio-Visual:

Ecological Systems Imperial Film Co., 321 S. Florida Ave. Lakeland, Florida 33803 $36.00
Forest Biome etc. 4 film strips 2 records
Fallin' Northern Wisconsin
11 min. BAVI
1696 Place to Live $3.00
1941 BAVI 18 min.
Fs St2 "Ecological Imbalance"
ICE-RMC
Kit #46 American Forest Institute Washington D.C. ICE-MRC (cont.)

Community:

Housing Construction Projects
Earn Construction in rural area
School supply room
Office supply room
Local companies (to note paper needs).

CONTINUED OR ADDED LEARNING ACTIVITIES

Affective: (cont.)

Weigh the advantages and disadvantages of using wood substitutes in an effort to reduce the use of timber products.

In-Class: (cont.)

recreation and water-shed protection.
Problems:
1. Need 18.8 billion cu. ft. growth 16.6 cu. ft. shortage. How many billion cu. ft.?
2. The average person now uses 560 lbs. of paper a year. In 2000 A.D. each person will need 1000 lbs. of paper per year.
   What is the increase of each person's needs?

*Discussion: 3.2 million acres burn every year. How can we prevent this waste?

3. It takes 12,000 board feet to build one house. How many board feet will it take to build 3 million houses? Equate or discuss with a local neighborhood development.
4. Break into small groups to discuss the ways this situation can be improved. What can they do about it?
5. Then discuss how they can convince their classmates of the need & the way for the wise use of paper. Possibilities:
   a. Panel discussion
   b. Prepare slides and a talk
   c. Prepare slides accompanied by a student prepared tape
   d. Make posters
   e. Make a large tree, animate. Use children's voices live or taped for the talking tree.

Outside or Community: (cont.)

V. Have a member of the Dept. of Natural Resources visit your classroom. Discuss your area's woodland assets. Discuss the state's potential and annual wood product outputs.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Audio-Visual: (cont.) Reel-to-Reel Tapes Titles: a. Clear Cutting b. The Forest Future c. Trees and Energy d. Financing Forestry e. Recreation
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 11 Individual Arts

SUBJECT Language Arts - Math

ORIENTATION Resource Conservation

TOPIC/UNIT Wisconsin Resources

BEHAVIORAL OBJECTIVES

Cognitive:

Write factual paragraphs showing how his use and man's use of natural resources affect the environment.

a. Amount available for man's use

b. Pollution or quality

Affective:

Respond favorably to suggestions that illustrate the values of keeping down waste.

Asks for more information that clarifies the amount of resources consumed by himself during one year.

Skills Used:

1. Writing paragraphs
2. Library skills
3. Computation
4. Keeping a log
5. Planning
6. Drawing conclusions

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Language Arts

A. Research to find out what Wisconsin was like before White men arrived.

B. Write 2 paragraphs-one factual, and one imaginative, on how man has changed his environment in Wisconsin. In these paragraphs the student should offer reasons why this change is good or bad.

C. Read and discuss paragraphs stressing the fact that clearing land by the early settlers caused waste of lumber, floods, dust storms, and soil erosion. The above shows how our ancestors misused our natural resources. The next activity will demonstrate the present-day individual misuse of natural resources.

II. Mathematics

A. The class will weigh the amount of paper

(cont.)

Outside or Community:

I. Invite a representative from a waste disposal plant to discuss with the class the cost of picking up and disposing of waste paper.

II. If recycling is going on in the area - support it by working an hour on Saturdays or by helping in collection and baling of newspapers or other materials.

SUGGESTED RESOURCES

Publications:

Language textbook:
Our Language Today -4, pp. 168-174
American Book Company
Books About Wisconsin:
Exploring Wisconsin, Follett Publishing Co., 1967
The Enchantment of America-Wisconsin, Children's Press, '64
Badger Tales, Lyons & Cornahan, 1940.
Magazines About Wisconsin:
Badger History
Wisconsin Tales and Trails (cont.)

Audio-Visual:

Conservation of our Forests
(film strip)
EYE Gate House, Inc.
432 Park Ave., New York
Aggradation/Degradation Kt 5
Ecological Imbalance" Fs
St 2 at ICE-RMC

Community:

ounty Forester
aste Disposal
lant Representative
aper Mill Representative

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

(notebooks/looseleaf) they have in their desks. This amount will be added to the amount in other classes and a total weight in pounds determined for the entire school.

1. This can be done by rows, having each child add the weight of his paper to his neighbor's.
2. The amount in total for each row can then be added to the sum of other rows.

(Fact - one tree can produce 200 pounds of paper).

III. Social Studies

A. Have the student keep a log for one week on all the paper products used in his home.
B. Compare and discuss how each individual misuses paper products.
C. Devise methods of conserving and recycling products. Find substitute paper products such as paper cups, paper plates and paper toweling.
D. Discuss misuse of other resources. Suggestions: Metals; Water; Wildlife.

Publications: (cont.)

America's Natural Resources, Callison, Charles H. 1967
Future Environments of North America, Darling, F. & Milton, John P.
Trees and Forests Jepson, Stanley M.

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental: **Integrated with:**

CONCEPT NO. 11 Individual Acts **SUBJECT** Social Studies

ORIENTATION Individual Acts **TOPIC/UNIT** Conservation

BEHAVIORAL OBJECTIVES

Cognitive:
Describe individual negative and positive acts upon nature's balance in a discussion construct dioramas, bulletin boards, etc., illustrating comparisons of the results of negative and positive environmental actions by man.

Affective:

Criticize the actions of others as being harmful to the environment.

Chooses to take a bath; shower at home because the method requires less water than the other method.

Skills Used:

1. Observation
2. Diorama
3. Demonstration
4. Experiments

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

The following is a list of a variety of activities that will make the students aware of how individuals alter the environment after discussing these.

A. Diorama of nonliving things and buildings: farm or city scene. (It doesn't appear attractive.) Then place trees, flowers & bushes; it improves the appearance of farm or city.

B. Bulletin board of birds. Each child "shoots" a bird with a pretend gun which will decrease bird population. Also, gun noise will scare the other birds away. Then one cannot enjoy birds in their habitat.

C. Some people water lawns. (Let your lawn or yard be "Natural"). Collect water that would be sprinkled on a lawn in 2 minutes. Calculate to see how much water is needed in one hour. (clean water is a scarce commodity. Now it must go through its endless cycle and each time around it

(cont.)

Outside or Community:

I. Billboard survey activities and detailed worksheet available through ICE office.

II. Student keep a weekly log of local incidents, neighborhood examples: building developments, etc. will illustrate the concept of individual acts that alter environment. Report to the class. Trade ideas and list on chart for visual impact.

SUGGESTED RESOURCES

Publications:

The Conservation Ed. Assoc.
Box 450, Madison, Wis. 53701
Peterson Field Guide Series
115 - P.F. #1-11
#6 Ferms
#10 Wildflowers
ICE-RMC

Audio-Visual:

Films:
The Gifts, Color CESA 9 Office at 1927 Main Street, Green Bay, Wis. 54301, Film 280
Garbage-color CESA 9 office Film 260
Sg. 12 Garbage Game
Educational Ventures Inc. ICE-RMC

Community:

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

picks up pollutants of various kinds.)

D. Compare amount of water used in taking a bath or a shower. When taking a shower, put stopper plug down to catch the water. Mark with tape. Then take a bath. Compare amount of water used. Afterwards, use method that uses least amount of water.

E. Experiment: Bring samples of different detergents. Mix them with water. Observe suds & color of water. Use detergents which produce less foam and few phosphates. (Phosphates promote growth of algae & other water plants.) Ditto chart to give to mothers about content of phosphates in soap. "Guidelines for Citizen Action on Environment Problems". Address: The Conservation Education Association, Box 450, Madison, Wisconsin 53701.

F. Paper & metal can drive to encourage recycling.
   1. Tie papers together and squash cans.

G. Bulletin board of wild flowers. Learn to recognize them. Take nature walk in springtime. Why shouldn't one pick them?

H. Forest fires deplete tree products.
   1. List its products.
   2. Search for products made of wood.
   3. Make a collage of products on pictures of products made of wood.
   4. Get"Smoky the Bear Kit."

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 11 - Individual Acts

SUBJECT Art

ORIENTATION Individual Alterations

TOPIC/UNIT Group Ceramics

BEHAVIORAL OBJECTIVES

Cognitive:

Demonstrates individual procedures to change static surface to dynamic surface, through the making of a clay object.

Evaluate the use of the clay object making procedure as an analogy to man's alterations of the earth.

Affective:

Accepts responsibility of the individual in working to develop the whole improvement of the environment or other activity by participating.

Skills Used:

1. Clay modeling
2. Surface textures
3. Glazing
4. Making comparisons
5. Drawing conclusions

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Pass a chunk of clay around the room (start round or square or as a "wet" pot). Each person handles it or changes it in some way. The end result will be quite different from the beginning piece of clay, but very interesting. Fire and Glaze.

   Does this suggest a discussion point--like the ball of clay to planet earth and its alterations by man.

Outside or Community:

A. Visit local ceramic studio or university to learn more about clay.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES

Publications:

"It Just Happened; Clay Modeling" H.C. Warburton-Arts & Activities 69: 22-4 Mr. '71

"Figures of Clay and Plaster", C. Heiple, School Arts, 71: 10-13 0 '71

"Clay and Young Hands Go Together G. Kruse, Arts & Activities p. 8-12 Dec. '67

"Clay is Fun", R.A. Yoder School Arts, p. 20-1 Oct. '71

Audio-Visual:

Film 320 The Stream
ICE-RMC

Community:

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 12 Stewardship

SUBJECT Social Studies

ORIENTATION Personal Responsiblity

TOPIC/UNIT Conserving Resources

BEHAVIORAL OBJECTIVES

Cognitive:
State examples that illustrate that there are kinds of personal responsibilities involved in the conserving of our natural resources.

Affective:
Promote recognize cooperative action in order to preserve the environment, by planning an approach in which a number of persons and industries are active participants.

Skills Used:
1. Decision making
2. Analyzing
3. Critical thinking
4. Observation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

I. Noise Pollution
   A. On a designated day students will report all sounds heard.
      1. List these on the board
      2. Class makes judgments of pleasant and unpleasant sounds.
      3. Discussion of: What can we do to correct this?
         a. Loud recorder-plays, radios, TV.
         b. Yelling, etc.
      4. Children make recordings of sound environments.
         a. School (classroom gym)
         b. Home
         c. Street noises
      5. With eyes closed take a mental imaginary trip, Teacher will create different environments such as:

(cont.)

Outside or Community:

I. Have a park manager relate the expense involved in repairing defaced facilities, stating also why people should respect areas designated for swimming, picnicking, camping.

II. Have janitor talk to class pointing out the expense of repairing damage done during the year.

III. Visit a waste treatment plant or have the director of a plane speak to the students.

IV. Try to compile the amount of money being put into creation and maintenance of recycling or environmental quality improvement projects within the local area. Then compare the increase or decrease to the need and the increasing awareness of decadence.

V. Field trip to study an industrialized neighborhood for signs of pollution or misuse of natural resources.

VI. Class discussions on findings and possible reasons for them. Write letters to editor

(cont.)

SUGGESTED RESOURCES

Publications:

The Conservation Ed. Association
Box 450 - Madison, Wis. 53701
Environmental Education Concepts & Teaching Materials, Cook, Gr. 4-6
Interaction of Man & The Biosphere
Rand McNally & Co. Chicago, Ill.
American Forestry Magazine
Social Sc. - Concepts & Values
Harcourt & Brace, p. 114-127
"Investigating Man's World"
Metropolitan Studies Unit 4
Scott Foresman, Economics

Audio-Visual: (cont.)

Recycling Resources-Continental Can Co. Simulation game available at ICE Sg 6 Set I
"America's Urban Crisis"
Group 1 SVE K-13 available at ICE-RMC
"Ecological Crisis" K-14
SVE ICE-RMC
Free movie from Weyerhauser Libr. Co. on Tree Farming Methods
Filmstrip:
Using Our Forests Wisely from group Conserving Our Natural Resources (cont.)

Community:

Local business leader
Farmer
City official
These can all be interviewed by students or they can give talk to the class

CONTINUED OR ADDED LEARNING ACTIVITIES

In-Class: (cont.)

a. Farm
b. Deep quiet forest
c. New York City
d. Factory

II. Conserving
  A. Research the School
    1. Count light fixtures and outlets in room, also homes.
    2. Multiply results by number of classrooms.
    3. Divide class into small groups; count fixtures and outlets in extra rooms--office, gym, library, etc.
    4. Janitor and students locate fuse box and outside transformers. (Continue mental tracing to power plant).
    5. Find out how much the school's electric bill is.
    6. Run off information for classroom and parents; newsletter should contain suggestions for conserving energy.
  B. Teacher distributes worksheet on water conservation contest.
    1. Students will list for 3 days all the ways man uses water.
      a. Water in food
      b. Factories - cooling device
      c. Washing vegetables and fruits
    2. Divide class into groups, each group discussing list and waste, polluting and correct use of water.

III. Beautification
  A. Divide class into groups to work on landscape dioramas. Examples: Cluttered and neat.
    1. Lawns
    2. City parks
    3. Beaches
    4. Forests
    5. Picnic areas
    6. Campsites (cont.)

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	In-Class: (cont.) B. Each group gives a report on diorama--for or against. IV. Wildlife A. What would happen if we completely blacktopped the school property? Have children think about this silently. Suggestions: Killing off of ants, beetles, worms, etc., as a result of birds will die from lack of food (breakdown) of food chain). B. What would happen if the farmer used his land anyway he wants to because it is his. Example: Clearing all land Draining soil Cows walking in streams Lack of erosion control C. Draw conclusions about personal responsibility toward ownership and the environment.
Audio-Visual:	Outside or Community: (cont.) explaining what was found & child's reaction to it. Write letters to companies explaining what was found & asking them what is being done about it. Write letters to State Congressmen for any information on State pending bills concerned with situation discovered.
Community:	Publications: (cont.) Unit 5 "The Social Sciences" Harcourt Stone, A New Ethic for a New Earth, Friendship Press, N.Y. $1.95 Audio-Visual: (cont.) Films: Electricity and How It Is Made, 16 min. color (EBF) BAVI (cont.) 115

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications:	Audio-Visual: (cont.) Insect Enemies and Their Control, 11 min., color, Coronet BAVI Our Environment 2 Sound & Noise Kt 30
Audio–Visual:	
Community:	

E. S. E. A. Title III – PROJECT I–C–E 59–70–0135–4

Environmental:

Integrated with:

CONCEPT NO. 12 Stewardship

SUBJECT Art

ORIENTATION Stewardship & Rights

TOPIC/UNIT Posters

BEHAVIORAL OBJECTIVES

Cognitive:

Identify pictures or illustration of animals that are becoming extinct.

Describe groups or individuals that are over-extending their use of resources.

Affective:

Indicate a feeling disgust with those who have over-used things. So they are no longer available for others to use in words or facial expression.

Skills Used:

1. How to illustrate and organize a poster.
2. Balancing composition.

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Wanted Posters
   1. Do posters in the form of the old western "Wanted Dead or Alive".
   2. The only difference would be that those who destroy parts of our environment would be the victims of the posters. e.g. factories, litterbugs, cars, etc.

Outside or Community:

A. Borrow criminal posters from the local post office to illustrate basic layout.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: "Psychedelic Posters", M.F. Bolger, School Arts, p. 40, Sept. 1971 Maurallo, S. Ralph, Commercial Art Techniques, Tudor Pub. Co., New York, 1952. National Wildlife-Apr. May 1974 "Endangered Species." **Audio-Visual:** **Community:**	

E. S. E. A. Title III – PROJECT I-C-E 59-70-0135-4

Environmental:

CONCEPT NO. 12 Stewardship

ORIENTATION Respecting Property Rights

Integrated with:

SUBJECT Physical Education

TOPIC/UNIT Volleyball and Lead-Up Games

BEHAVIORAL OBJECTIVES

Cognitive:

List at least 2 reasons why they should respect other people's property.

Affective:

Choose to respect property and rights of others in situations such as:

a. Walking across lawns or on sidewalks
b. Picking flowers or looking at them.

Skills Used:

1. Catching and throwing
2. Playing a position
3. Volleying
4. Cooperation

STUDENT–CENTERED LEARNING ACTIVITIES

In-Class:

A. Lead-up volleyball (4th Gr.)
   1. With a volleyball court set-up the students should be assigned to a space.
   2. Once a space is assigned, the students will play catch over the net without dropping the ball.
   3. After success in #2 have children pass the ball 3 times on a side with the last pass being to the line.

B. -Activities
   1. Newcomb
   2. Poison Apple

   Note: Level of play depends on skill level of student.

C. Discussion - Student centered-teacher directed.
   1. Why must we play our own space?
   2. What could happen if we went all over the court?
   3. Can we say that this space is a private piece of land?

(cont.)

Outside or Community:

I. Have a park manager relate the expense involved in repairing defaced facilities. State also why people should respect areas designated for swimming, picnicking, camping.

II. Have janitor talk to class pointing out the expense of repairing damage done during the year.

SUGGESTED RESOURCES	CONTINUED OR ADDED LEARNING ACTIVITIES
Publications: Environmental Education Concepts & Teaching Materials Cook, Gr. 4-6 Interaction of Man & the Biosphere, Rand McNally & Co., Chicago, Ill. Dynamic Phy. Ed. for Elementary School Children, Victor P. Dauer **Audio-Visual:** **Community:**	In-Class: (cont.) 4. What about private property - should we trespass? 5. What about other people's property - should we mark on it or destroy it? 6. When we go to a park, how should we leave it?

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APPENDIX

CAN BE USED WITH CONCEPTS 2 & 3

CROWS AND CRANES

Equal number of players in two straight lines, three feet apart. One team is "Crows"; the other team "Cranes". When teacher calls "Crows", they run to their goal line and Cranes try to tag them. If he calls "Cranes", Cranes run to their goal. Any player caught goes to opposite team.

CAN BE USED WITH CONCEPTS 2 & 3

BIRD CATCHER

Divide the class into four or five kinds of birds. One player is the hawk. The hawk stands in the center between two goals. He tries to guess the kind of bird each group is. When he calls the bird of a group, they must try to run to opposite goal without being tagged. To give hawk hints, the birds may imitate the sound they make.

CAN BE USED WITH CONCEPT - 7

LONG BASE

Equipment: one playground ball, ball diamond; second base is only base used.

One team is up - the other team spaced on playing field. Ball is thrown into field. Runner attempts to run around base and home before being hit by the ball. Once a fielder has the ball, he cannot move but must either hit the runner or pass the ball to another player. Three outs to an inning.

CAN BE USED WITH CONCEPTS 7 & 9

INDIVIDUAL KICKBALL

Two equal teams - team one is up to make points, while team two players are in the field. Player kicks the ball out into the field and attempts to run as many bases as he can before his opponent can bring the ball to home base. One point is scored for each base. A home run scores five points.

CAN BE USED WITH CONCEPTS 7 & 11

HOT ROD

Form a circle. Count off by fives. Each car has his own garage. Teacher calls a number, all cars with that number run counter-clockwise around the circle once back to their own garage. Last one to get back has a wrecked car so is out of the race. Player sits down in his "garage". Game continues until one car of each number is left.